View metadata, citation and similar papers at core.ac.uk
brought to you by CORE
provided by Repositori Institucional de la Universitat Jaume I

COMPETITIVE AND STRATEGIC ANALYSIS OF THE PORT OF CASTELLON

Bachelor's Degree in Business Administration

Directed by:

Carla María Martínez Martínez

Developed by:

Alicia Camino Fuertes Carrasco

Academic Year: 2014-2015

ABSTRACT AND KEYWORDS

The Port has always been significant in the province of Castellon given its relationship with the economic development of the area. However, due to globalization and the continuous technological advances in maritime transport, the concept of captivity in port traffic has been virtually abandoned, increasingly intensifying competition between ports. The main objective of this essay is the identification of suitable competitive strategies for the Port of Castellon in line with its characteristics and external and internal environment, in relation to the Strategic Plan in force. The methodology to be developed consists in an analysis of the general and competitive environment, an assessment of the competitor ports, as well as an internal analysis of the main positive and negative factors of the port of Castellon.

Keywords: port, competition, strategy, strategic plan.

CONTENS

IMAGES

GRAPHS

TABLES

CHARTS

1. INTRODUCTION

At the present time, port activity has an important impact on the economy of its geographical area, being the maritime transport the most used in international trade. This is due to the considerable volume of trade existing between major economic areas. In the Spanish case, 75% of imports and almost 50% of exports are carried by sea, generating 35,000 direct jobs and about 110,000 indirect jobs.

As a result of the significance of sea transport in worldtrade there is a high degree of inter-port competition, for trying to gain new traffic as well as for keeping the habitual. It is precisely to increase the competitiveness of the Port of Castellon, and consequently of the province, that in 2003 the construction of the South Basin began as an extension of it, multiplying to date tenfold the port area. This has been so far the most costly infrastructure project carried out in the province, with a public and private investment of over 1,000 million euros, which exceed other important actions such as “Universitat Jaume I” or Castellon Airport.

The Infrastructure Master Plan of the Port of Castellon establishes the expansion works of the South Basin, posing it in various stages until 2027 in order to adapt the extension to the expected evolution of traffic as well as to the Port Authority financial capacity.

The Master Plan is now halfway through its development, being it divided into different strategic plans for better development and control. The Strategic Plan 2005-2010, which initiated the renovation of the Port on the basis of the development of infrastructure and capacity; the Strategic Plan 2009-2011, which is an update of the previous one in order to adapt the objectives and actions of the plan to the times of economic crisis lived in that period, thus focusing on diversification and the increase in freight traffic; and the current plan, the Strategic Plan 2013-2017, whose main objective, after achieving the targets set by the previous plans, is the increase of the Port competitiveness through five strategic lines: Optimization of processes and services, Development of the intermodality, Putting in value of the assets, Balance and traffic diversification and Promotion of policies of sustainability and CSR.

Taking advantage of the strategic plan in force, a competitive and strategic analysis of the port of Castellon will be made in this essay. The document is divided into different sections: first a presentation of the port and its characteristics, then the PESTLE analysis and an assessment of Porter's five competitive forces regarding the maritime sector, both used for the realization of the extended SWOT analysis of the Port of Castellon, which then will help in the designing and development of different competitive strategies. In the current Strategic Plan they are developed a number of strategies related to the five strategic lines mentioned above. In the last section of this essay I explain some of these strategies as a way to increase the competitiveness of the Port, in some cases modified under my discernment, as well as own developed strategies, always based on the five principal strategic lines.
Finally, I will make a short conclusion also making reference to the need for monitoring and evaluating the strategic implementation.

2. CHARACTERISTICS OF THE PORT OF CASTELLON

2.1. Mission, vision and values

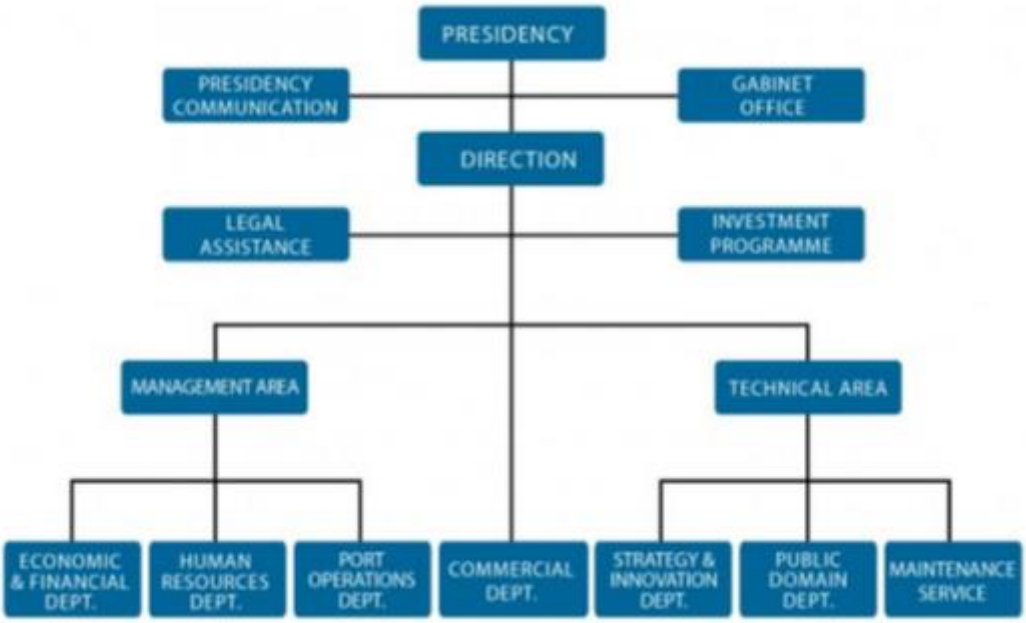
MISSION: Develop the provision of integrated logistic services which generate value for our clients, while at the same time promoting the integration of the port with the town, thus making it a force for economic, social and commercial development.

VISION: To become a highly competitive port sustained by innovation and to become a port of reference in the Mediterranean for its proactive attitude and sustainability.

VALUES: Feeling of belonging, a friendly, personalised service, client satisfaction, safety and sustainability and a commitment to society.

2.2. Organisational structure of the Port Authority

Image 1. Organisational structure of the Port Authority.



Source: Port Authority of Castellon.

2.3. Infrastructure and facilities

The Port of Castellon, under the brand name PortCastelló, has four available basins suitably sheltered, thanks to two big seawalls, Eastern Breakwater and Closing Breakwater. In the next graphs is showed the current infrastructure and facilities of the port basins and, in the summary chart of Annex 1 is exposed the evolution of the changes in the port until reaching the current level of infrastructure, since 2003 when the construction of the South Basin started.

The Inner Basin has 8 meters deep in most of its surface. This is the historical basin of the port where it coexists different types of merchant ships and traffics: on one hand, sports ones in the south part and, by the other hand, general cargo traffics in the South and North part (Levante Quay and Transverse Interior).

The Fishing Basin is located in the South of the Inner Basin and is dedicated, as its name indicates, to the fishing activity. It has an entrance mouth for entering the basin limited to 90 meters and a berth line of 1,254 meters and 5 meters deep.

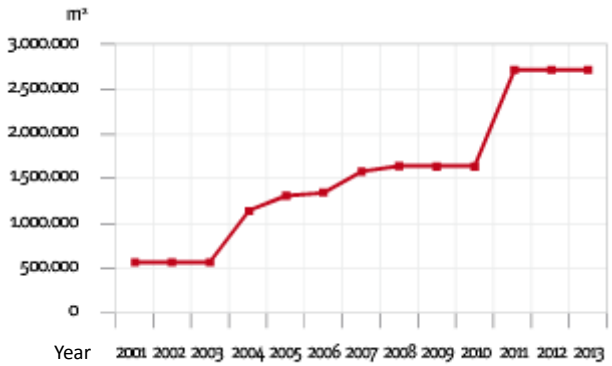
The North or Exterior Basin is located in the most outer part of the northern area of the port. It is fitted with two of the most important quays of the port, the Ceramics Quay and the Centenary Quay. The water depth of this basin is about 12 meters allowing the arrival of big bulk carriers and container ships. However, the Centenary Quay and the quay connected to the East Dock prolongation achieve 14 and 16 meters deep respectively.

The South Basin, inaugurated in 2008, currently has 16 meters deep and its purpose is deal with the traffics of big merchant ships of dry bulks, liquid bulks and associated to the petro-chemical sector, like oil tankers.

The onshore part of the port has more than 6 hectares dedicated to recreation area, result of the strategy of city-port integration. Close to the port of Castellon there is also the Serrallo Industrial Estate, where there are located different types of industries.

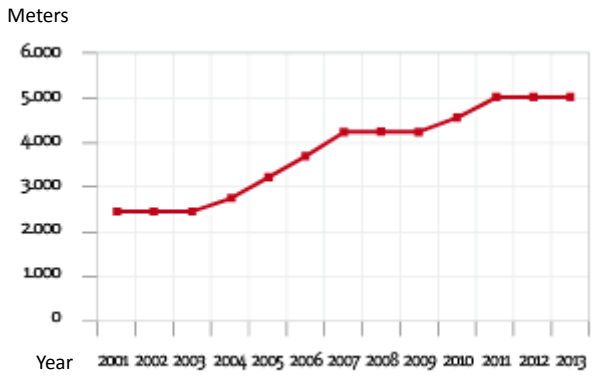
In the next graphics it is presented the evolution until reaching the current level of infrastructure and facilities of the port basins, in the period 2001-2013, regarding the quantity of land area, commercial quays and water depth, as well as the distribution of terminals. Moreover, in Annex I it will be exposed in a summary chart the expansion and improvement works in the port until reaching the current level of infrastructure, since 2003 when the construction of the South Basin, until today.

Graph 1. Land area of the port of Castellon.



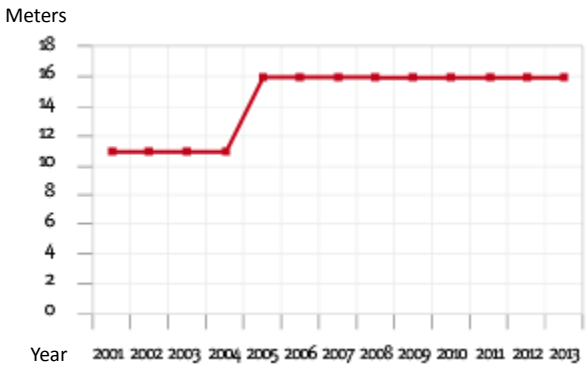
Source: Annual Report of the port of Castellon 2013.

Graph 2. Commercial quays of the port of Castellon.



Source: Annual Report of the port of Castellon 2013.

Graph 3. Depth water of the port of Castellon.



Source: Annual Report of the port of Castellon 2013.

Image 2. Distribution of terminals and its characteristics.

TERMINALS	MAXIMUM DEPTH (meters)	ADJACENT SURFACE(Ha)	DOCK FRONT (meters)	EQUIPMENT SPECIAL FACILITIES
2 Terminals for general cargo and containers (♦)	14	30	780	4 Portainers cranes, 4 Transtrainers cranes
2 Terminals for solid bulk (♦)	16	80	940	Stores, clinker grinding, cement store
1 Terminal for fruit and vegetable (♦)	11	11	294	10,000 pallets
Surface for logistics activities (♦)	--	40	--	
2 Terminals for liquid bulk (♦)	16	31	955	Biodiesel plant, berths for bulk liquids
1 Dock for cruises (♦)	16	--	350	2 ro-ro ramps

Source: Port Authority of Castellon.

2.4. Accesses

▪ 2.4.1. Road accesses

The current accesses by road of the port of Castellon are:

• Dual carriageway CS-22: This is the unique access finished and in operation. It starts in the km 959 of N-340, at the southwest of Castellon, and by this road it connects with the AP-7 (Mediterranean Highway), the CV-17 and the CV-10 (Plana Highway). This road goes across the southeast of Castellon and connects with the port at the northeast of the capital, going through the city centre of the “Grao de Castellon” by a tunnel of 500 meters, which connects directly with the North Basin.

• Other roads that also direct to the Port of Castellon are: CV-183 from Almazora to Grao; CV-150 from Grao to Benicassim; and CV-1540 road crossing CS-22 from Castellon to Grao. All these roads are connected to the N-340, from Cadiz to Barcelona and with the Motorway AP-7.

Other accesses in the pipeline are:

- North Access: It is a highway in the pipeline that expects connecting the N-340 and the AP-7, between Castellon and Benicassim with the CS-22, at the northeast of the capital.

- South Basin Access: This is a project that expects connecting the CS-22 and the old N-225 with the Serrallo Industrial Estate and the South Basin of the port.

- CV-10 – CS-22 connection: Although this is not the official name, the Department of Infrastructure has anticipated, with the help of the Ministry of Public Works and Transport, the creation of this junction, considering that the two more important highways for connecting with the port (CV-10 and CS-22) are not interconnected, what causes that the traffic that travel by the CV-10 and wants to access the CS-22 has to go around the CV-17 and the N-340, two roads now in decline.

2.4.2. Rail accesses

The Port rail accesses consist in the North Access from Las Palmas Halt, connecting it with the Spanish railway network, allowing the business sector work with their own carriers to bring their goods to the port. The port of Castellon is connected once a week with the one in Bilbao by a railway line.

Image 3. Route of the North Railway Access of the port of Castellon.

Source: Port Authority of Castellon.

Currently, the railway line only reaches part of the Port, specifically the North Basin as shown in the picture above, arriving up to the container terminals. For this reason the Port Authority is studying the construction of a new rail access in the South Basin, with the aim of improving the concept of intermodality and the number and variety of traffics. The route of this new access would first pass throw a parallel section from the North Access, remaining parallel from the CV-183, considering in that place an intermodal station and leading in the South Basin (as shown below).

Image 4. Proposal of the South Railway Access.

Source: Port Authority of Castellon.

▪ 2.4.3. Pipeline accesses

This type of access is limited to the liquid bulk traffic such as fuel, ammonia, sulphuric acid... Specifically, the company “B.P. Oil España, S.A.” has available one underwater pipeline for the unload of crude oil and one line for the fuel oil supply. In addition there are two berths on the Liquids Quay in the South Basin which are connected to the installations in the Serrallo Industrial Estate, with four pipelines for kerosene, gasoline, fuel oil and diesel fuel, LPG gas and LPG liquid, respectively.

The “Infinita Renovables, S.A.” company has underground pipelines connecting its facilities with the particular docking they have in the plant. From its facilities runs a pipeline on the surface to the “B.P. Oil España, S.A.” Refinery, for the supply of bio-diesel.

The “Logística de Hidrocarburos CLH, S.A.” company has two pipelines that run from the berth it has in the Closing Breakwater to its facilities in the industrial area of the Serrallo Estate.

Finally, “UBE Chemiqual Europe, S.A.” has available a pipeline for ammonia and three more pipelines for cyclohexane, cyclohexanone and sulphuric acid. These pipelines run from the Bulk Liquids Dock in the South Basin to their installations situated next to the road on the Connection Breakweater.

2.5. Regular shipping lines

It goes without saying that the Port of Castellon can be reached by ship across the Mediterranean Sea. The ships that ususally arrive come from Spain, Algeria, Libya, Israel, Italy, Tunisia, Ukraine, Nigeria, Lebanon, USA, Ecuador, Albania…; mainly Mediterranean countries.

In the case of the destination of the ships, it is usually Africa (Angola, Guinea) and the Eastern Mediterranean (Spain, Algeria, Italy, Libya, Tunisia).To a lesser extent, the rest of Europe (France, Norway, Netherlands, Portugal, United Kingdom, Ukraine, Turkey, Russia) and America (Brazil).

The usual type of the ships that access the Port is bulk solid, general cargo, container and tankers (bulk liquid and oil tankers).

Table 1. Liner shipping services.

WESTERN MEDITERRANEAN		
COMPANY	**FREQUENCY**	**SHIPPING AGENT**
IGNACIO MESSINA	10 days	Viuda Enrique Gimeno
BATINAK SHIPPING TRADING	10 days	Roca Castellón
MAGREB IBÉRICA	weekly	Instramed
MSC	weekly	MSC Spain

Table 1. Liner shipping services (continued)

EASTERN MEDITERRANEAN		
COMPANY	**FREQUENCY**	**SHIPPING AGENT**
FAST LINE – DEMLINE	bi-weekly	Universal Marítima
BORCHAR LINES	5 days	Marmedsa
MSC	weekly	MSC Spain

BLACK SEA		
COMPANY	**FREQUENCY**	**SHIPPING AGENT**
ARKAS GROUP	weekly	MSD Levant Shipping
MEDAZOV LINE	weekly	MSD
NAVIGATION MARÍTIME BÚLGARE	10 days	Roca Castellón
NAVIGATION MARÍTIME BÚLGARE	10 days	Viuda Enrique Gimeno

RED SEA		
COMPANY	**FREQUENCY**	**SHIPPING AGENT**
IGNAZIO MESSINA	10 days	Viuda Enrique Gimeno

WEST AFRICA		
COMPANY	**FREQUENCY**	**SHIPPING AGENT**
IGNAZIO MESSINA	10 days	Viuda Enrique Gimeno

NORTH AFRICA		
COMPANY	**FREQUENCY**	**SHIPPING AGENT**
ARKAS GROUP	weekly	MSD Levant Shipping
B.K. Shipping	10 days	Viuda Enrique Gimeno
CNAN	weekly	Transcoma
GRAUCHURT CONTAINER	weekly	Intramed
MAGREB IBÉRICA	weekly	Intramed
SEA HORSE LINE	10 days	Castellón shipping
EGYPTIAN	weekly	Castellón Shipping
TRANS MED EXPRESS	bi-weekly	Marmedsa
FAST LINE	bi-weekly	Marmedsa
DEM LINE	bi-weekly	Marmedsa

Table 1. Liner shipping services (continued)

EAST AND SOUTH AFRICA		
COMPANY	**FREQUENCY**	**SHIPPING AGENT**
IGNAZIO MESSINA	10 days	Viuda Enrique Gimeno

INDIA AND PAKISTAN		
COMPANY	**FREQUENCY**	**SHIPPING AGENT**
IGNAZIO MESSINA	10 days	Viuda Enrique Gimeno

ARABIAN GULF		
COMPANY	**FREQUENCY**	**SHIPPING AGENT**
IGNAZIO MESSINA	10 days	Viuda Enrique Gimeno

NORTH AND WEST AFRICA		
COMPANY	**FREQUENCY**	**SHIPPING AGENT**
KAWASAKI LINES	monthly	Viuda Enrique Gimeno

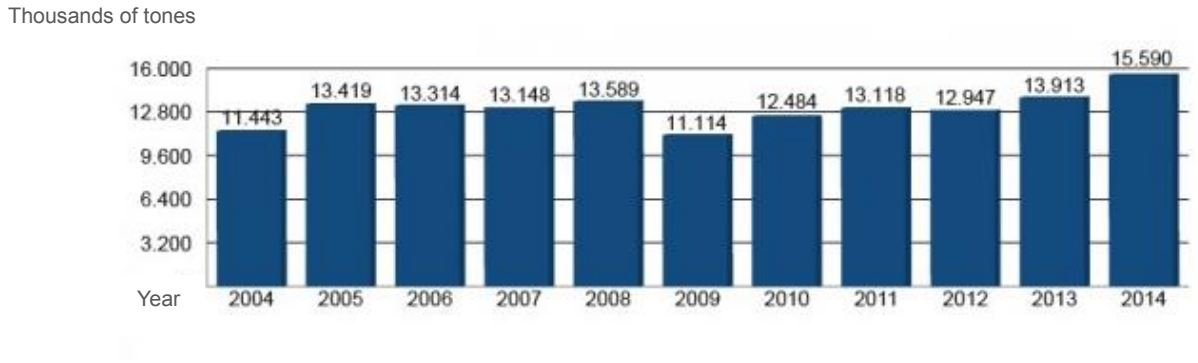
Source: Own elaboration. Data: *Castellón Marítima* Journal.

2.6. Traffics

The following charts show the evolution of the total traffic from 2004 to 2014, as well as the volume of traffic by type of goods in the same period.
A positive trend in every type of traffic is observed, until in 2009 they show a remarkable decline, this is the year that most influenced the economic crisis in the Port of Castellon and in most of the Spanish Ports.

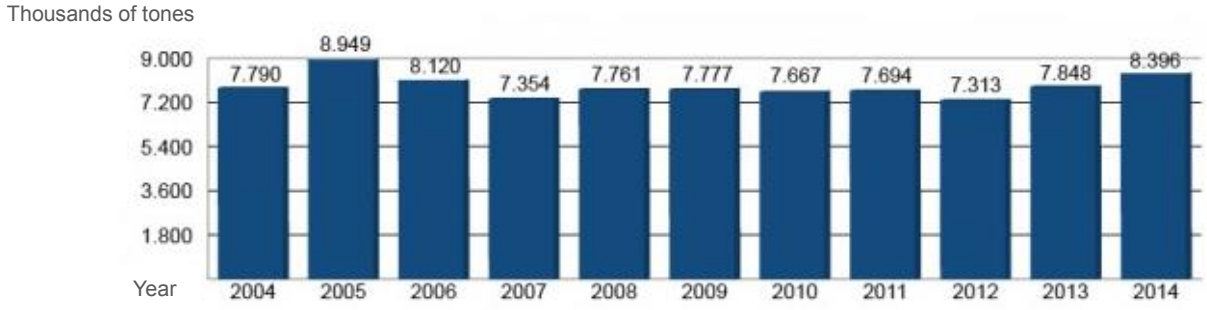
From 2010 a gradual increase in traffic is being observed, however this fact does not mean that the profit margin of the port did the same. Due to the economic crisis, customers are demanding lower prices making the profit margin smaller since 2009. Although the graphics show a considerable increase in traffic in recent years, the profit margin of the port of Castellon is still affected by the consequences of the economic crisis.

Graph 4. Evolution of total traffic.



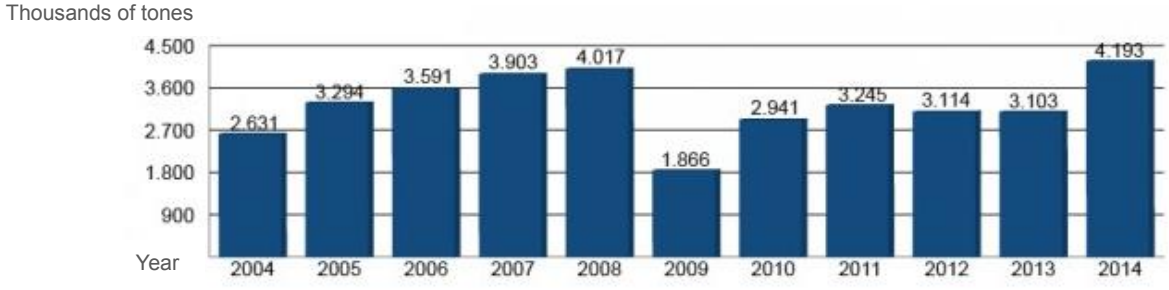
Source: Port Authority of Castellon.

Graph 5. Evolution of liquid bulk traffic.



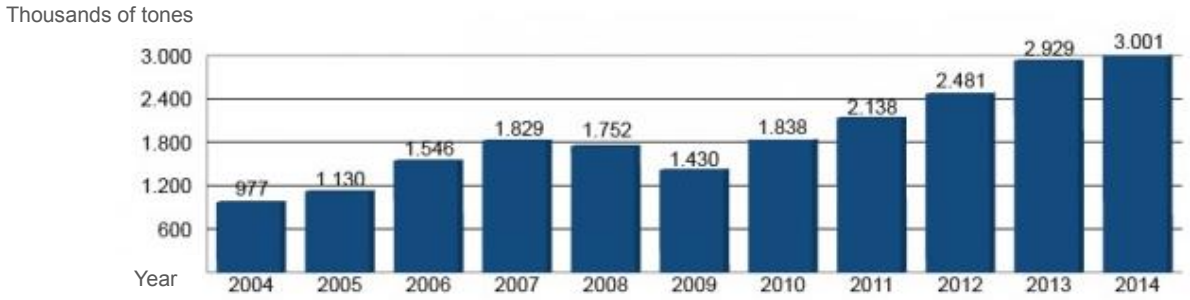
Source: Port Authority of Castellon.

Graph 6. Evolution of solid bulk traffic.



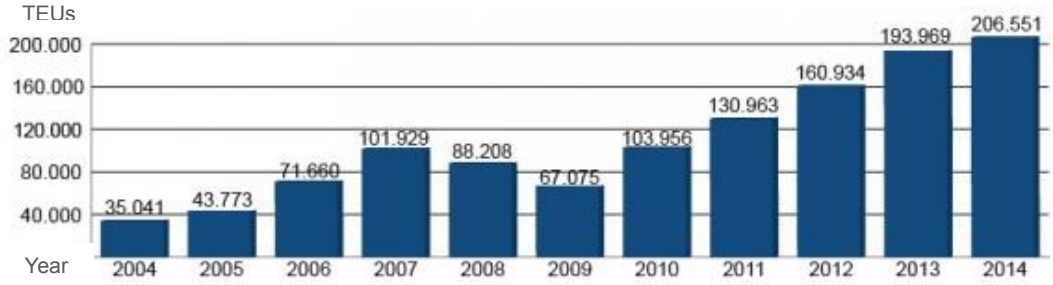
Source: Port Authority of Castellon.

Graph 7. Evolution of general cargo traffic.



Source: Port Authority of Castellon.

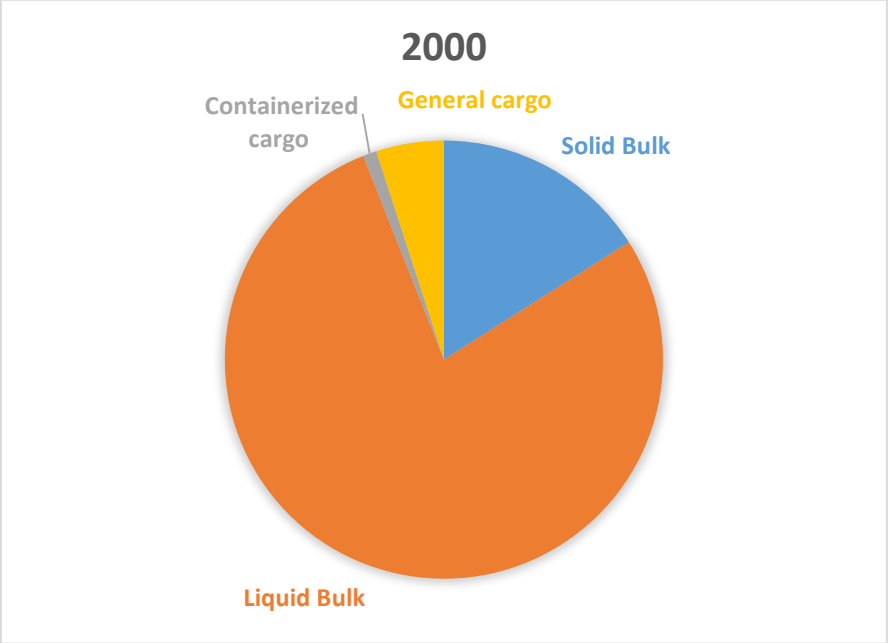
Graph 8. Evolution of TEUs.



Source: Port Authority of Castellon.

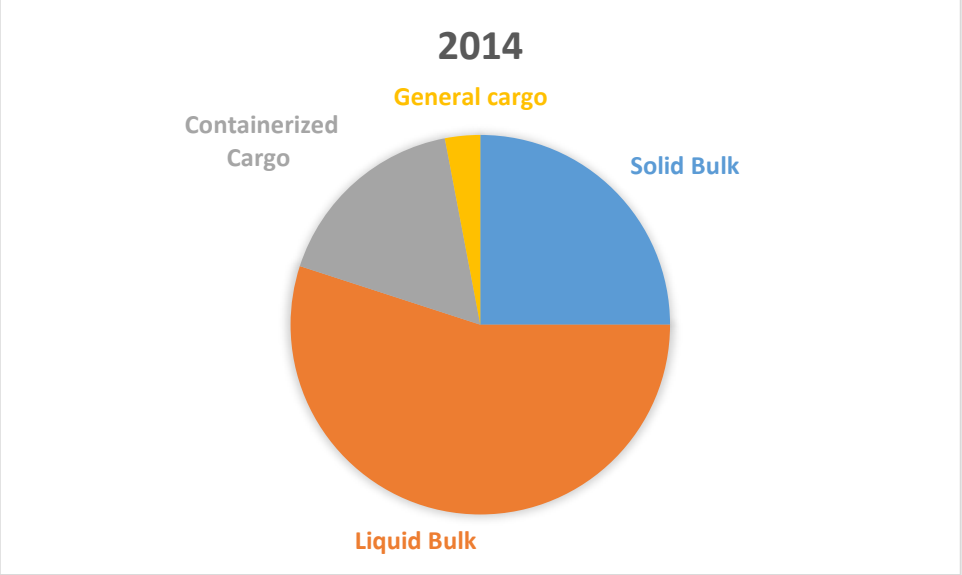
As shown in the pie chart below, the principal traffic of the Port of Castellon are bulks, at the present 55% of them are liquid, 25% solid, and the remaining 20% of general and containerized cargo, approximately. Fourteen years ago, the principal indisputable traffic was liquid bulk and, with the infrastructure investment and diversification carried in this period, the traffics have increased considerable, besides now they are more equitably distributed.

Chart 1. Composition of the traffic of the port of Castellon in 2000.



Source: Own ellaboration. Data: Port Authority of Castellon.

Chart 2. Composition of the traffic of the port of Castellon in 2014.



Source: Own ellaboration. Data: Port Authority of Castellon.

The main unloaded goods are:

- Liquid bulk: sulphuric acid, phosphoric acid, ammonia, biodiesel, fuel oil, diesel, crude oil and cyclohexane.

- Solid bulk: feldspar, clay, urea, phosphates, carbonates, fertilizers, sand, nitrates, cereals, coke, cement and food for animals.
- Containerized and general cargo: minerals, steel products, chemicals, construction materials, carbonates, citrus and agglomerate board.

The main loaded goods, in a smaller number than the unloaded ones, are:
- Liquid bulk: diesel and gasoline.
- Solid bulk: sulphates, construction materials, clay, coke, phosphates and caolin.
- Containerized and general cargo: enamel, glass frits, citrus and agglomerate board.

2.7. Hinterland

It is considerated the hinterland of the Port of Castellon as the land area of influence, where is originated, manufactured or produced most of the exports, and which is consumer of the principal imports of the port. So this is the area of influence around the port.

Within the hinterland of a port they can be distinguished different areas; in the nearest area of the port it virtually has no competition so that almost all of the traffic generated in this area comes from that port; as we move away from the port there is potential competition from other nearby ports on the routing of goods.

For example, the area of the province forms the immediate hinterland of PortCastelló. Other geographical areas such as Valencia, Tarragona and Cuenca are also part of this hinterland but, in this case, the port enters in open competition with other ports in the Spanish Mediterranean area (Valencia, Tarragona, Sagunto…).

In particular, analysing the geographic area of economic influence, the communications, the type of goods transported and the evolution of exports and imports of each province, it is obtained the hinterland of the port of Castellon, which has an area of 400 kilometres. On the map you can see the Spanish provinces that are inside the area of influence of the Port. Valencia, Tarragona, Zaragoza, Teruel, Murcia, Almeria and Madrid account for about the 30% of the Spanish population, so that the exports and imports from the hinterland of the Port account for more than one third of the whole from Spain.

Image 5. Hinterland of the port of Castellon.

Source: Port Authority of Castellon.

The main goods in the area of influence of the Port, grouped by product families, are mineral fuels, oils, waxes and bituminous substances; salt, sulphur, lime and cement; fruits, vegetables and plants; ceramic products; paper, cardboard and plastic; vehicles and accessories; iron and steel; and inorganic chemicals.

▪ 2.7.1. Competitor analysis

The ports that represent competition of the one in Castellon and share the area of influence of it are those in Valencia, Sagunto, Tarragona and Barcelona. As seen above, Castellon is a port whose main traffic is dedicated to solid and liquid bulk. Given its proximity and similarity of traffics Sagunto, Valencia and Tarragona are presented as direct competitors of the Port of Castellon, also influencing its hinterland. Therefore there are analyzed below the main traffics and characteristics of each competitor port.

Although Barcelona share part of the hinterland of the port of Castellon, I do not consider it inside this assessment because of its remoteness, great economic power and both

national and international presence, far in part from the possibilities of the port of Castellon.

Image 6. The port of Castellon and its direct competitors.

Source: Own elaboration.

- Port of Valencia.

The APV (Port Authority of Valencia), under the brand name Valenciaport, is the public institution responsible for the management of three ports in the Valencian Community (Valencia, Sagunto and Gandia).

The main goods handled in the port of Valencia are the containerized cargo (construction materials and chemicals), general cargo (cars, petroleum products and machinery and spare parts), ro-ro traffic and cruises.

The port of Valencia supports relevant sectors in local economic development such as construction; furniture, footwear, toys and textiles; chemical; wine and fruit juice; pulp and paper; automotive; agro-food; and tourism.

Some features of this port presented as an advantage to Castellon are the high level of congestion in the port area, which generates additional costs for delays to ships; and the small difference in the distance between the port of Castellon and the port of Valencia for a significant portion of customers. As the main threat, its notoriety and prestige at the

international level, as well as its wide range of shipping lines.

- Port of Sagunto.

Although traditionally the Port of Sagunto has been specialized in the steel products traffic, establishing itself as the main steel cluster at national level, today this port area is characterized by its versatility and by the access to new traffic such as natural gas, vehicles, containers and solid bulk. After several years of decline in the characteristic traffic of this port (steel products and automobiles), Sagunto has entered the bulk market constituting a strong competitor for Castellon in this type of traffic (cement, coke, clinker, fertilizers, agro-food…), especially in the case of agro-food and clinker because of its closer proximity to the producing and consuming factories. However, in this port the loading and unloading operations of bulk are performed without special installation and with the constraints of a draft of 13 metres.

Sagunto port supports relevant sectors in the economic development of the province of Castellon such as energy; steel; construction; fertilizers; and automotive. Another feature of the port of Sagunto that pose a threat for the one in Castellon is the lower and aggressive pricing, even though it has a small space within the port area for loading, unloading and storage; besides being very subject to environmental constraints required by the APV.

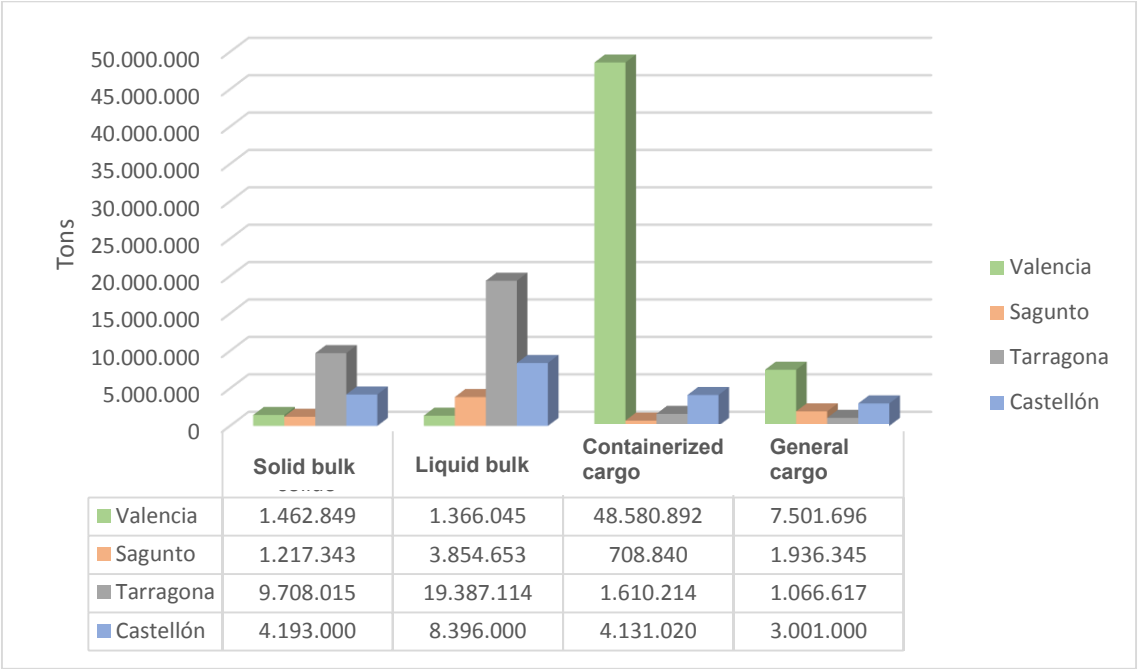
- Port of Tarragona.

Tarragona is also presented as a strong competitor for PortCastelló because of its proximity and significant proportion of bulk cargo traffic, becoming the main bulk port in the Mediterranean. In particular, it represents a strong competitor in traffics such as agro-food, biomass, scrap metal and coal.

In general, the relevant sectors in local economic development that take advantage of the port of Tarragona are energy; chemicals; agro-food; fertilizers; and iron and steel. Specifically, the port of Tarragona stands out in the traffic of the following goods: liquid bulk (crude oil, fuel oil and chemicals), containerized cargo (steel products) and solid bulk (minerals, fertilizers, grain, feed and fodder).

In order to conclude the above analysis, next graph show the comparison of proportion of each type of traffic in 2014 regarding the ports of Castellon, Tarragona, Valencia and Sagunto.

Graph 9. Comparison of competitor ports by type of goods.



	Solid bulk	Liquid bulk	Containerized cargo	General cargo
Valencia	1.462.849	1.366.045	48.580.892	7.501.696
Sagunto	1.217.343	3.854.653	708.840	1.936.345
Tarragona	9.708.015	19.387.114	1.610.214	1.066.617
Castellón	4.193.000	8.396.000	4.131.020	3.001.000

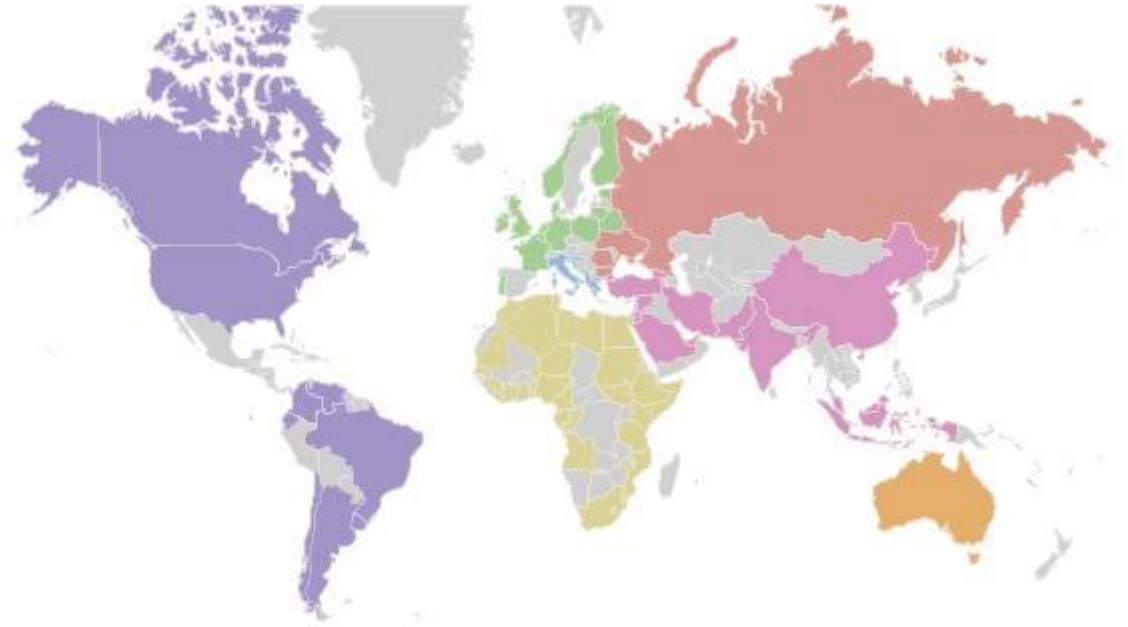
Source: Own elaboration. Data: Port Authorities of Castellon, Tarragona and Valenciaport.

2.8. Foreland

The foreland is composed by the territories located in the maritime side of a port, beyond the maritime space and with which the port is connected by means of maritime transport. So this is the port global area of influence, to which the load generated by its hinterland is directed or from which the loads destined to that hinterland come from.

More than 73 countries form the foreland of the port of Castellon, with particular relevance to the Mediterranean traffics. As shown on the map, France, Italy, UK, Portugal, USA, Netherlands, Saudi Arabia, Algeria, China, Morocco, Belgium, Tunisia, Poland, Venezuela, Turkey, Greece, Russia, Israel, South Africa , Argentina, Brazil, Mexico, Norway, Qatar, Egypt, Libya or Ukraine include the principal destinations and / or international origins of the port of Castellon loads.

Image 7. Foreland of the port of Castellon.



Source: Port Authority of the port of Castellon.

2.9. Stakeholders

The Port Authority considers stakeholders the groups of people or entities that are or may be affected by the services or activities of the port, and those whose opinions or decisions affect their reputation, economic or environmental performance. Therefore, the Port Authority establish its stakeholders as:

- Employees.
- Suppliers: banks, suppliers of fixed assets and infrastructure, suppliers of services and materials.
- Customers: direct (concessionaires, logistic agents and companies from the Serrallo Industrial Estate) and indirect (shippers and ship masters).
- Partners: foundations, universities and schools, institutions and associations, as well as partners of European projects.
- Public Administration: general administration (OPPE, Ministry of Public Works…), local and regional administration, as well as other authorities (Treasury Department, INEM, etc.).
- Society: media, citizens (Grao de Castellon and Castellon) and neighbourhood associations.

After identifying the stakeholders, The Port Authority has made a priorisation of them, based on criteria such as value contributed to the Port Authority, Port Authority impact

on the stakeholder, stakeholder influence on the Port Authority and proximity to the port. In this way the groups of employees, suppliers and customers are defined as the priority stakeholders for the Port Authority, whose current concerns or worries are:

- Employees: working environment, acknowledgment and occupational training.
- Suppliers: payment period and attention received.
- Customers: application of fees and charges and the service quality.

3. PESTLE ANALYSIS

After the presentation of the port of Castellon, it will be realized first an analysis of the general environment (macro-environment) in which, through a PESTLE analysis, they will be detected opportunities and threats at the political, economic, social, cultural and technological level which affect or will affect the business decisions for the Spanish port system or any port in Spain, including Castellon. In addition to an analysis of the specific environment (micro-environment), with an analysis of the five competitive forces of Porter.

Once these assessment has been completed, it will be developed an extended SWOT analysis, which consists in a cross-analysis of the four elements (strengths, weaknesses, opportunities and threats) and how they can contribute among each other for obtaining, in addition to the diagnosis, strategies "macro and micro integrated" and actions to be considered by the strategic direction of the Port of Castellon.

3.1. Political and legal factors

The maritime transport is characterized by a high level of regulation, with both national and Community legislation. This is due to the presence of high economies of scale and

barriers to entry, and the need to guarantee the safety of users. However, although the European Union is one of the biggest maritime trading powers in the world, it does not have a clearly defined ports policy which allows coordinating the different organization and management systems of Community ports.

The European Union has developed the concept of "blue belt" which allows a barrier-free maritime transport between Community countries, facilitating customs and administrative procedures, as well as port State controls.
Other political and legal factors that promote international trade are the free trade agreements and treaties with countries like Colombia, Algeria, Egypt, Morocco, Israel, Mexico, Tunisia or Turkey.

Regarding the future, they can arise treaties favouring the Spanish traffic such as the negotiation of the Transatlantic Trade Investment Partnership (TTIP) between the EU and US that might involve the elimination of payment of import duties on trade between the two world powers. Another example is the announcement of the creation of the “M2” and the “Ocean Three” strategic alliances, which replaces the “P3” alliance. These agreements consist in the share of space on the ships of large shipping companies, on one hand MSC (Mediterranean Shipping Company) and Maersk Line, and on the other hand China Shipping Container Lines (CSCL) and United Arab Shipping Company (UASC), respectively, what will incur lower costs, higher frequencies and more destinations with direct services.
These alliances will become a threat for the Spanish shipping companies by the fact that the capacity of the '2M' alliance in relation to its competitors in the Asia-Mediterranean area will reach 39% in the total volume of goods and, regarding the 'Ocean Three' alliance, it would reach 27%.

Continuing in the global level, the slowdown in the Chinese economy, one of the main world's exporters, have affected maritime traffic with Europe. The struggle between the Mediterranean ports is more than evident, some of them to retain their current traffics and other in order to own the existing traffic.
At national level, Spain is currently immersed in an electoral period that may result in a change of government later this year, this uncertainty about the incoming government and the present situation of recovery from the economic crisis may lead to changes in the legislation which regulate the activities in the State's ports.

3.2. Economic factors

Among the economic factors, it stands out the contraction in international trade due to the economic crisis and, consequently, the decrease of Spanish imports and exports. There is an impact of the economic crisis worldwide and in specific sectors, such as the ceramic and construction industry whose traffics depend on the port of Castellon but they are traffics that have been recovering from this impact in recent years.
Today a slow recovery from recession in emerging countries and a favourable evolution of Spanish exports and imports is observed, in particular, in containers and solid bulk.

We are facing a vast process of globalization, which suppose the constant increase of commercial exchanges realized by sea. Likewise, we witness a sharp increase in competition due to a greater incorporation of new countries into world trade. This fact opens the possibility of new markets, where there is a significant concentration and a dramatic increase in traffic with and in Asia, particularly China.

The globalization of the port industry has also strongly changed the traditional practices in which the traffic lines and carriers of a country favoured certain ports. The arrival of containers into the global freight traffic and the increasing trade with Asia have broken the traditional concept of scale. So that currently, there is only one acceptable criterion for carriers and shippers, which involves that their traffics move by routes that offer the best results in terms of the global provision of the service and, in particular, in economic terms.

Other economic factors are the foreseeable upward trend of maritime transport in the future, while this type of transport reaches 70 percent of trade between the EU and the rest of the world; and the implementation of the European gauge measure and the Mediterranean Corridor, along which 47.8% of the Spanish population and 44.8% of GDP is concentrated, and which accounts for almost half of total goods and passenger traffic in the EU. So as its connection with the port of Castellon would suppose an increase in commercial traffic and an improve in intermodality.

3.3. Social factors

92 percent of the Earth's population is concentrated in the Northern hemisphere, what conditions the figures of freight traffic and explains the importance and transport volume on routes that plough through as small areas as the Mediterranean Sea.
They are also social factors the job creation projects in ports linked to renewable energies; the absence of a Community framework for job training, health and port safety; and trade unions for the fact of creating social and support networks among port workers, as well as for creating collective strength to demand their rights.

The ports are also a social factor in terms of the image and prestige that give to the city or town where they are located, what is called port-city relations. They may also have a strong historical and cultural roots, as well as a role as an agent of social and business fabric development in the region.

3.4. Technological factors

In the field of transport and logistics, it stands out the increasing use of information and communication technologies. In addition, the widespread use of the Internet has become one of the main technological factors for the shipping and port companies, which enables a proper control and contact with the customer, the Administration and the Port Community.

Technological developments have advanced in such a way that the units of transport are getting larger as they try to respond to the process of containerization, and that's when ships capable of carrying over 8,000 or even 12,000 TEUs are required. This technological progress, with greater capacity and power of the ships make more efficient journeys and require, therefore, larger port developments.

In the maritime sector we also find a remarkable risk of obsolescence, because of the recurrent necessity of updating the fleet of ships, equipment and navigation systems and, onshore, machinery and technology for proper loading and unloading operations. This necessity is created not only to meet the environmental and safety requirements, but also to keep some efficiency levels in order to stay competitive in the marketplace.

3.5. Environmental factors

In the last decade, there has been a higher concern for the environment and, being the maritime a pollutant mean of transport, the environmental factors should symbolize an important factor, as show the introduction of eco-efficiency as a business value in the sector.

While that is true, maritime transport is much less polluting than railway and road transport, in terms of ton per kilometre, CO2 emissions and other environmental indicators; only outdone by pipeline transport (restricted to a limited number of products) and river transport (underused transportation because of the difficulty for large ships).

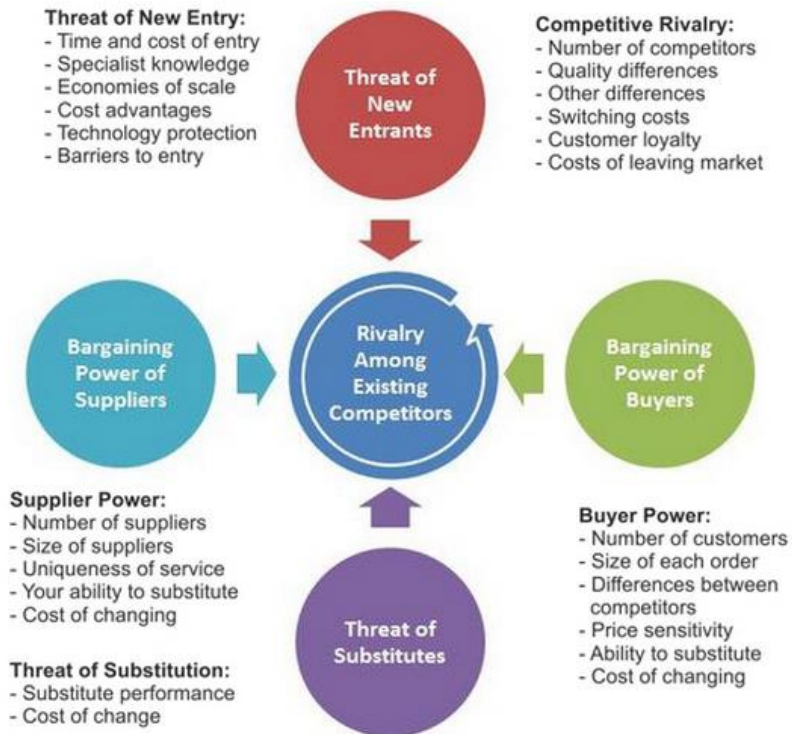
In this type of transport the risky operations and the handling of dangerous goods may affect the environment, so that importance is attached to the standards and preventive measures for the proper development of these operations. In maritime transport must be carried out pollution, releases and residue controls. With this it is achieved, in addition to commitment and respect for the environment, greater efficiency of operations.

4. PORTER FIVE FORCES ANALYSIS

Named after the professor and researcher Michael E. Porter, this model identifies and analyses five competitive forces determining in every sector, required for determining its profitability degree and shaping a competitive strategy. Next image shows each force and the principal factors that act on them.

The determination of the profitability level of the maritime sector is carried out in Annex II by a series of questions regarding each competitive force, if the answer of the question is True, that factor will increase the impact of the economic force in the sector; by the contrary if the answer is False it will reduce this degree. This method can be applicable to any business area.

Image 8. Porter five forces analysis.



Source: Comindwork website.

4.1. Bargaining power of buyers

According to the evaluation in Annex II, the sector is not dominated by customers, although it's true they have certain power over suppliers, in this case customers are determined as import / export companies of the hinterland of the port of Castellon. In the port system there are other customers such as shipping companies and forwarding agents, but this micro-environment analysis focuses on import / export companies that use port services to transport their goods as they represent the final customer.
Customers have certain power over the suppliers of port services by different considerations: inexistence of high switching costs, large sizes of orders and high level of services information offered by suppliers.

A first consideration relating to the limitation on the bargaining power of customers is the relative importance of product costs. If the product is one of the essential components or represents a significant part of their production, (as in the case of most import and export companies that use the services of the port of Castellon, specialized in bulk traffic necessary for various industries such as construction, ceramics, fertilizers…), it is very

likely that customers try to cut prices as much as possible. If, on the contrary, the product represents only a small proportion of their costs, it is easier to obtain better prices.

Moreover, the high number of import / export companies in the market, the importance of the quality of products or services offered by suppliers, the inexistence of threat of backward integration as suppliers must obtain special concessions and licenses for carrying out their activity, and the low price sensitivity of the market are aspects that reduce the bargaining power of customers in the sector, as shown in the Annex.

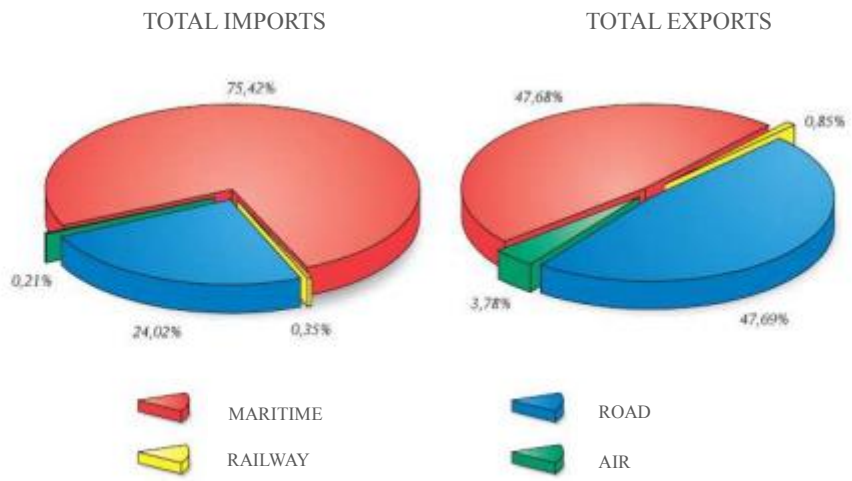
4.2. Threat of substitutes

According to the analysis in Annex II, the threat of substitute products in this sector is virtually zero, since there is a low degree of substitutability in the maritime transport. The services provided from the port infrastructure and facilities are often irreplaceable, so demand often has a low elasticity with respect to price and quality of the service. Therefore, the risk of abuse of authority is evident and grows proportionally with the absence or inadequacy of alternative means of transport.

In the pie chart below it stands out the high percentage of imports and exports carried by sea in the EU, especially in the case of imports, being one of the causes the limited degree of substitute means of transport which have the same characteristics as maritime transport. The high percentage of imports carried by sea is due to the predominant presence of raw materials from distant countries that have to be necessarily transported by this mean and due to the constant irruption of manufactured goods from Asia; and the high level of exports is due to the export capacity of Spain in some strategic sectors such as ceramics, construction, automobile...

The next most used mean of transport is the road, transport that is often connected with the maritime one in order to carry the goods to or from the exporter or importer port, respectively.

Chart 3. Distribution of means of transport employed in Spanish imports and exports.



Source: Parra Serrano, M., 2012. *Mejora de la competitividad del sistema portuario español mediante la optimización del servicio de manipulación de mercancías.*

4.3. Bargaining power of suppliers

In this case, we define suppliers as companies providers of port services, such as:

- Tecnical-nautical services:
  - Pilotage services
  - Tugboats services
  - Mooring and unmooring services

- Transport services:
  - Embarkation and disembarkation of passengers
  - Loading and unloading of luggage
  - Loading and unloading of vehicles with passengers

- Disposal of ship-generated waste service

- Cargo handling services

The following table shows who is usually responsible for the provision of these services in Spain.

Table 2. Participation of the principal port services.

Activity	Responsible for the provision
Maritime signalling	Port Authority
Pilotage	Pilots private corporations
Tugboats	Private companies
Mooring, unmooring (all those services involving movement of ships)	Private companies
Loading, unloading and transhipment	Private companies with permanent and temporary workers from SAGEP
Ship repair	Private companies with concessioned infrastructure, generally private and sometimes public

Source: Couceiro Martínez, L.; [et al.], 2013. *Competitividad de un puerto y su relación actual con el sistema portuario español*.

The sector is highly concentrated in a small number of large groups of companies that provide these port services. Alongside them there is also a wide range of small firms specialized in a type of service such as mooring or disposal of ship-generated waste. This high degree of concentration in the sector, along with the fact that the group of suppliers sells to different industrial sectors, gives the supplier a higher bargaining power with respect to the customer. Other factors also grant this power such as the inexistence of substitute services, the high degree of differentiation or the importance of the quality and reliability of the services offered, factors that as we have already seen reduce the bargaining power of buyers in this sector .

The customer base breadth of these suppliers depend on the number of ports where their companies are present. So that they stand out providing services in many Spanish ports “Pérez y Cía Group”, “Acciona Logística”, “Boluda Group”, “Bergé Maritima Group” or “Noatum”; the three last ones are present at the port of Castellon. Several operators are also present in international ports. For example, “Noatum” is present in countries like China, Portugal, Chile, Ukraine or Dominican Republic through participation in companies managing container terminals.

4.4. Threat of new entrants

Currently, this competitive force poses no threat to the port sector according the Porter analysis made, partly due to its medium/low level of profitability.
Initially this was an extremely attractive sector because of its high barriers to entry (public port domain and large investment in infrastructure). However, the level of profitability has declined because of the difficult economic situation so the entry of new competitors has also been reduced, after years in which the high economic growth in Spain attracted many companies in the maritime sector in general, mainly foreign.

This reduced threat of new entrants is due in part to economies of scale in the sector, as ships are a mean of transport whose capacity increases in proportion to its size. Hence there is a general tendency to increase their size as well as ports modify the physiognomy of their infrastructure in order to adapt to the needs of ships seeking access to their facilities.

Moreover, the type of activity is associated to high capital requirements to access the level of infrastructure, equipment, working capital, promotion and reserves to cover possible losses; as well as they exist policies that prevent free access to the sector as concessions or special licenses; which represent barriers to entry for new competitors.
These capital requirements are so high that, along with the economic slowdown, it is patent the concentration process in this sector, either by the acquisition of new companies, such as “Bergé Maritima Group” and “Maritima Candina Group”, or by the leave from the sector of other companies as “Contenemar Group” or “Odiel Group”.

Finally, another factor that influences the likelihood of entry of new competitors and the profitability of the sector, along with barriers to entry, is the expected behaviour of the companies in the current marketplace. If a sector is dominated by very strong companies, for which it is important to maintain their market shares, it is expected that market dynamics is different from other whose market is made up of small companies, relatively independent from each other. This is why in the port sector is more difficult to compete, or grow and gain competitive advantage, that is to say, stay in the sector.

4.5. Rivalry among existing competitors

According to Porter's analysis, in the port sector there is a high degree of rivalry between competitors, and we can also say between the direct competitors of the port of Castellon (ports of Tarragona, Sagunto and Valencia) and the port of Castellon, hence the analysis that has been done previously on the characteristics of these competitors in Point 2.7.1.

More than a competitive force, rivalry among existing competitors becomes the result of the previous four forces. The rivalry defines the profitability of a sector: the more competition exist in the sector, it will be less profitable and vice versa; relationship that occurs in the case of the port system.

This high degree of rivalry among competitors is determined by factors such as the slow growth of the industry, since this is not a mature industry where competition not only becomes a scene for seeking greater market share. Rivalry also intensifies when fixed and storage costs are high since, because of this fact, companies try to make use of the maximum of its productive capacity. But, when companies employ all their productive capacity the entire industry is affected by a certain degree of overcapacity in installed production (equipment, infrastructure, personnel…), fact reflected in the port system in lower prices accentuating competition.

Rivalry also intensifies because of the strong existing barriers to exit (specialization of actives, fixed costs, government and social restrictions…) that make more difficult the exit of the company from the sector, thus force it to be more competitive to stay in the marketplace.

Apart from the barriers to exit, rivalry is also enhanced by high strategic interests. The geographical position is an important element of this factor, because when two companies are in the same geographical area greater competition and knowledge of the competitors actions can be generated, what occurs in the case of the port of Castellon and its direct competitors. In addition, the strong rivalry that has traditionally characterized the sector has been intensified considering the current economic situation, some companies opting for the tariff reduction in order to achieve greater market share and/or appropriate customers from the competition.

According to Porter's analysis and the high rivalry level in the sector, it is concluded that the port sector's profitability degree is medium / low. It should be stressed that, although initially this was an extremely attractive sector because of its high barriers to entry (public port domain and large investment in infrastructure), the virtual absence of substitute means of transport and the control of the supply chain achieved, they have been taken

measures which have undermined the attractiveness and competitiveness of Spanish ports in recent years.

This analysis highlights the factors that reduce competitiveness and attractiveness in ports, the increasing bargaining power of suppliers and the high degree of rivalry among existing competitors. In the Spanish case, this high bargaining power is partly due to the low level of differentiation of port services, being these offered by a few companies which also need special licenses and permits to operate. The growing power of port service providers, especially those in the cargo handling service, is one of the main critical elements; not only because of its high cost, but also for its ability to paralyse the port activity.

As a consequence of the latter factor and the low degree of the remainder factors from the analysis, it is obtained a high degree of rivalry between the port sector companies. One of the leading causes is the growing process of decentralization in the management of Spanish ports as a result of a temporary political decision, what is encouraging even more competition between Spanish ports providing customers an increasing power against the State's interests. Therefore, each Autonomous Community with a majority in the Administrative Boards of State's ports located on their territory on the basis of full managerial autonomy, compete with other regional governments in infrastructure public provision and try to appropriate traffics some to the others. The result is an unnecessary overcapacity in Spanish ports that also contributes not to retain customers, having no barrier to exit for not making any private investment.

5. INTERNAL ANALYSIS

5.1. The value chain

The value chain is a management tool developed by Michael Porter too, which enables making an internal analysis of a company, through its disaggregation in its main value generating activities.

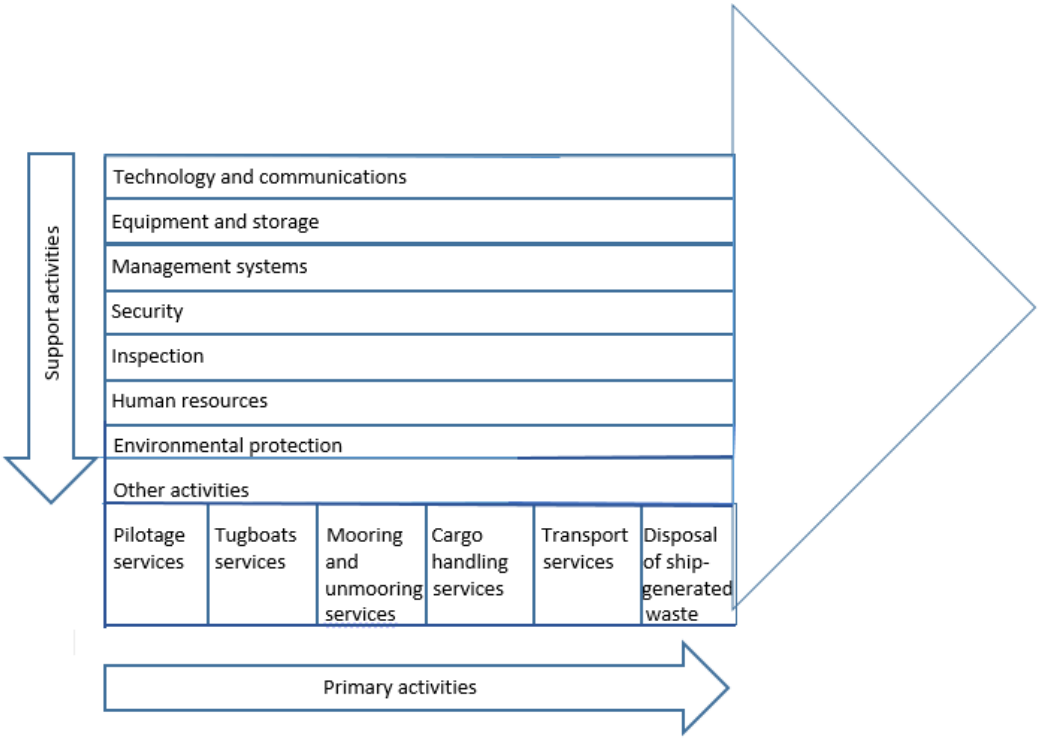
According to this tool, disaggregating a company in these activities allows a better identification of their strengths and weaknesses, especially with regard to potential sources of competitive advantages and costs associated with each activity.

In the case of the port of Castellon, the value generating activities are classified into primary and support activities. Primary activities, directly related to the production and commercialisation of the service, would be related to the different port services (pilotage, tugboats, mooring and unmooring, transport, cargo handling and disposal of ship-generated waste).

Support activities, which as its name implies support the primary activities adding value to the service without being directly related to the production and commercialization of it, they represent the areas of Technology and communications, Equipment and storage,

Management systems, Infrastructure and transport, Security, Inspection, Human Resources, Environmental protection, and other activities.

Image 9. Value chain of the port of Castellon.



Source: Own elaboration.

5.2. SWOT analysis

The extended SWOT analysis consists in a cross-analysis of the four elements (strengths, weaknesses, opportunities and threats) and how they can contribute among each other for obtaining, in addition to the diagnosis, strategies "macro and micro integrated" and actions to be considered by the strategic direction of the Port of Castellon. In this section each point of the extended SWOT table, shown in Annex III, will be explained, as well as its relevance for the internal and the subsequent strategic analysis of the port of Castellon.

5.2.1. Opportunities

1. Upward trend of Spanish exports and imports.

In the last few years it is observed a positive evolution of national exports and imports with also a positive forecast, after the large decline in 2009 due to the global economic crisis.
During 2014 Spanish exports grew 2.86% with respect to the previous year and amounted to 23.09% of GDP. That year there were deficits in the trade balance since, despite an increase in exports it was lower than the imports increase, which grew 5.70% over the previous year in Spain, representing 25.49% of GDP.

2. Diversification.

In maritime trade the diversification of traffic always provides a genuine opportunity, as the needs and availability in the global market are changing. However, if the port wants to develop a maritime line of a new traffic, it must first conduct a study and ensure that this exchange will provide the port profitability. The degree of traffic diversification in a port must be in line with the port's capacity, infrastructure, client's variety and business relationships.

3. Low degree of direct substitutes.

According to the table in Annex III, the threat of substitute products in the sector is virtually zero, since the services provided from port infrastructure and facilities are often irreplaceable. Therefore maritime shipping is representing the highest transport percentage worldwide and, specifically, in Spanish imports and exports, for its high load capacity, high connectivity capacity and low costs, in relation to the amount of freight transported and compared to other means of transport. Handling not only the massive transportation of raw materials and finished products, but also the exchange of intermediate products.

4. Availability of space (South Basin).

The South Basin of PortCastelló opened in 2008, adding 217 hectares of logistic terrain, 3,870 metres of dock front and reaching 16 metres of depth, representing to date a ten-

fold increase in the port area. At present there are located several companies in this basin, however there is still much space available with the intention of taking it up with new concessions. Granting new concessions represents a need for the port, because by doing so scales, workshops, stores and office buildings arrive to the operational areas what suppose a logistics improvement; being the cause of the lack of demand for occupying this space the high levels of investment required.

At present they are in the installation process in the South Basin the following enterprises: “Hormasa”, dedicated to the concrete production (on a plot of 9,000 m2); “Leatransa”, with a plant for the storage and logistics of solid and liquid bulk (16,500 m2); and “Urbamar”, which will install a plant for the reception and storage of liquid waste generated by ships (2,500 m2); attracting these installations new and higher traffics.

5. More commercial action and improvement of the image; through the Commercial Department, PortCastelló Foundation and enterprises.

To any entity or organization always suppose an opportunity to develop further commercial action, and even more in the case of PortCastelló because of its desire to grant new concessions, achieve notoriety in the marketplace, diversify traffics…; actions for which is essential the commercial and marketing area.

PortCastelló is present in the “Cevisama” and “Cersaie” fairs every year to support the provincial ceramic industry, as well as in the “Tecnargilla” fair in Rimini. The port is also present at “Fruit Logistica” Fair in Berlin, accompanying citrus exporters from the province of Castellon represented by “Asociex”. On the line of cruises, PortCastelló joined in 2006 “Medcruise”, the association that promotes and protects cruise ship traffic in the Mediterranean Sea. Beyond sectorial meetings concerning ceramics, fruit or tourism, the presence of PortCastelló has been also customary in trade fairs about transport and logistics in Paris, Munich and even in Moscow, as well as in presentation events promoting its offer of logistic services in La Rioja, Albacete, Zaragoza, Teruel and Madrid.

6. Development of new information technologies in the field of logistics.

TIC's constitute one of the most relevant innovation factors in any given company due to the high complexity of the environmental conditions, especially in the case of a port. Nowadays the competitiveness of any economic, business or professional activity

increasingly depends on the investment made in TIC, because of its ability for instantaneousness, interactivity, interconnection, collaboration and control, this is way the continuing evolution of information technologies in the field of logistics always represent an opportunity.

7. Logistics Activity Area, connection with the Mediterranean Corridor and road and railway accesses in the pipeline.

The development of a Logistics Activity Area located in The Serrallo Industrial Estate, nearby the South Basin, is one of the PortCastelló medium-term projects, an opportunity to define a production and logistics environment of great importance, where industrial, tourism and business activities could be performed. This fact means an opportunity because ports increasingly tend to integrate into the supply chains of production, transportation and distribution, becoming true centres of added value.

Remaining on the field of intermodality, they are also PortCastelló projects the implementation of the European gauge measure and the connection with the Mediterranean Corridor, as well as the Southern Road and Railway Accesses.
The development of the Southern Rail and Road Accesses represents an opportunity for the port as it would exist a direct access for trucks from the highway so they would not have to cross part of the Grao city, as it is the case of trucks that lead to the North Basin. The North Basin also has a railway terminal, although it is true that at present there is only one weekly line headed to Bilbao.

In order to develop the rail transport it would be a good option to build the Southern Railway Access since, by the lack of this access, this type of transport is restricted for the companies located in it and in The Serrallo. Last May, the Ministry of Public Works and Transport approved the Environmental Impact Study (EIS) of the Southern Railway Access, so the commencement of the work is expected to 2016. From this moment on, the procedures become responsibility of Adif (Spain's Railway Infrastructure Administration), which will assume the drafting of the project and the tendering of the works.

So as PortCastelló can exploit all the possibilities, this railway development should involve the implementation of the European gauge measure and the connection with the Mediterranean Corridor, which would foster the exchange with the rest of Europe, an untapped market by PortCastelló although there are available VAT exemptions for intra-

Community trade. The railway connection is considered strategic for the growth of not only the port but also of exports from key industrial sectors such as ceramic and citrus. Furthermore, it allows a cost savings and environmental policy by combining the two most efficient means of transport; besides truck traffic would be reduced promoting container traffic, traffic whose scarcity of shipping lines is one of the weaknesses of the Port.

▪ 5.2.2. Threats

1. High level of inter-port competition in the Mediterranean area.

The rise of Asia from the 1960s opens a new stage in which the Pacific Ocean on one side, and the Mediterranean on the other, as transit routes from Asia to the US and Europe respectively, stand as the busiest shipping lines in the world. The Mediterranean Sea becomes an essential part of a major route that, in this case, departs from the Far East, goes through the Indian Ocean and the Red Sea to reach the Mediterranean through the Suez Canal.

This route is the busiest in the maritime trade, linked to the Asia-Europe traffic, in comparison with the other main maritime routes: the transatlantic and the trans-Pacific. This is the reason why there is a strong competition between ports in the Mediterranean area, where are located ports which have a significant weight in the maritime trade such as, in the case of Spain, Barcelona, Valencia and Algeciras; and in the case of other countries, Gioia Tauro (Italy), Piraeus (Greece) or Marseille (France).

2. High power and traffic volume of the direct competitor ports.

The direct competitors of the port of Castellon are the ports of Valencia, Tarragona and Sagunto. As it was said before, Sagunto and Tarragona compete with the one in Castellon especially in bulk traffic, however the port of Valencia, although is also dedicated to this type of traffic, stands out more in container traffic. Even though the port of Castellon has a low percentage of this type of traffic and bulk is the main good, it also competes with Valencia for proximity and for forming part of its hinterland. Ports located in the hinterland of PortCastelló always turn out a threat by the fact that they can steal traffic, clients and trading partners.

The ports of Valencia and Tarragona are far ahead of the one in Castellon in traffic volume and prestige, although actually the total return of the port of Castellon is above the total return of these two ones. According to data from the Ministry of Public Works and Transportation in 2014, the ports of Valencia and Tarragona obtained around a 1.65% profitability, and the port of Castellon 2.06%. The same happens to the port of Sagunto, with small size and hinterland.

3. Consequences of the impact of the economic crisis in the ceramic and construction industry.

These are two sectors that have been badly affected by the economic crisis, however they are recovering as shown by the data. Regarding the construction sector in 2014, Spain reports the best figure of the Eurozone in inter-annual terms. The growth in January was 14.4% over the same month one year previously, when experiencing an acceleration of 1.9%. On the European Union level figures are also good since the construction sector as a whole grew 1.4% compared to January 2013, according to the European Statistical Office Eurostat.

Furthermore, in 2014 the tile industry increased its production by 2 percent and exports by 3.4 percent, according to data provided by the Valencian government. This sector emphasise its contribution to the fact that the industrial production and exports of Valencian Community triple the state ones.

It is also true that the recovery of the construction sector increases consumption of products from the ceramic sector like tile or brick and, therefore, is involved in the recovery of this sector.

4. High bargaining power of port services suppliers.

As noted in the section on five competitive forces of Porter, port services providers have a high power due to factors such as the high degree of concentration in the sector, the presence of clients from different sectors, the lack of substitute products, the high degree of differentiation or the quality and reliability importance of services provided. This factor threatens PortCastelló in the case of service providers from the competitor ports, since due to its high bargaining power they may establish prices or terms which can put at disadvantage the services offered in the port of Castellon.

5. Improvement of the infrastructure of competitor ports.

Especially in terms of number of traffic services and frequencies. Ports such as those in Valencia and Barcelona have a higher level of infrastructure, by having greater traffic diversity and quantity, and a greater willingness to public investment compared with other less important ports at national level such as the one in Castellon.

6. Reduction of expectations for public investment.

The high investment capacity of the port system in the last decade has attracted many national and international operators and has made them settle in the Spanish ports. However, the unfavourable economic situation experienced in recent years with steep port traffic falls has led to a situation of over-capacity in installed production in many ports, including PortCastelló. This situation, combined with the reduction in aid from European Founding, will lower the expectations for public investment in the coming years, as well as the possible entry of new foreign operators into the sector.

7. Increasing business concentration in the sector, through mergers and acquisitions.

The fierce rivalry that has traditionally characterized the sector has intensified facing the current economic situation, some companies opting for the acquisition of other companies or the merge between them in order to gain power and notoriety on the market. Currently, there is the acquisition of the OPDR shipping company (Oldenburg-Portugiesische Dampfschiffs-Rhederei) by the French shipping company CMA CGM, or the merge between Hapag-Lloyd and CSAV (Compañía Sudamericana de Vapores), among others. They are also created numerous strategic alliances and agreements, the latter announced is the 2M agreement between the shipping companies MSC and Maersk Line, for the space sharing of their ships in order to try to reduce costs.

- 5.2.3. Strenghts.

1. Strategic port location

The Port of Castellon has an enviable geographical location in the centre of the development area in the Spanish part of the Mediterranean sea, furthermore it has excellent transport links by road with direct access to the motorways of the Mediterranean and to the different national roads, being also close to important consumption, industrial and tourist areas.

The port of Castellon is located in an area where some of the most important ports in Europe converge, such as Barcelona, Valencia and Algeciras. In this case its most important competitive advantages reside in the price of the service and the geographic distance to the companies that use the port to import raw materials and to export established products, such as the tile sector.

2. Upward trend of the different types of traffic.

The port of Castellon is a point of reference in the import of dry bulk for the local ceramics industry, such as clays, feldspars, sands, minerals... It also has a considerable development of traffic regarding the fertilizer industry: ammonium sulphate, potassium sulphate; the construction sector: sodium sulphate, cement, clinker; and the cereal sector, such as wheat, corn and flour.
It also has a strong development of liquid bulk, relating to the petrochemical industry with coke, sulphur, biodiesel, diesel and fuel oil as the principal traffics. Regarding the container traffic, although its traffic volume is considerably lower than the volume of bulk goods traffic, this is a type of traffic under development in the port of Castellon.

3. Wide range of port first-rate infrastructure.

This strength can be seen in the four differentiated basins at its disposal, all of them properly sheltered and each one destined to specific trades. It also has a wide range of machinery and equipment, increasing in the last years thanks to the inauguration of the

South Basin in 2008, where are located large companies from the construction, fertilizers or energy sectors.

When compared to the competitor ports (Sagunto, Tarragona and Valencia), the port of Castellon has a higher level of developed infrastructure. This is because it accomplished its greater investment grade in infrastructure (South Basin) just before the economic crisis broke in 2009, whereas, even if the other ports planned to develop its infrastructure, soon after they couldn't due to the unfavourable economic situation, and nor now because they are still recovering from it.

4. Close business cooperation with associations and companies in the ceramics, citric and energy sector.

The tile industry imports 90 percent of its raw materials through the Port of Castellon, and exports 40% of the finished product, tiles and bricks. In addition, PortCastelló is the first exporting port of citrus, highlighting the shipments to the US and Russia made in recent seasons. Together with the location of the only refinery in the Valencian Community and the largest biodiesel plant in Europe, it is therefore no surprising the close business cooperation between companies in these sectors and the port.

5. Location of the only refinery in the Valencian Community and the largest biodiesel plant in Europe.

Castellon hosts the only refinery in the Valencian Community (B.P. Oil), the largest biodiesel plant in Europe (“Infinita Renovables”) and will have the country's largest fertilizer plant (“Agriberia”) in due course, all located in the South Basin. The strategic importance of the refinery of Castellon lies in providing more than 80% of the Valencian Community demand and 100% of the Balearic Islands. In addition, a high percentage of the Community electricity demand is supplied from the Iberdrola's two combined cycle units, the energy sector is highly present in the port of Castellon.

6. Quality certifications.

PortCastelló is quality certified according to ISO 9001/2008 standard in its two key processes: Ship Call Process and Administrative Treatment of Public Port Domain. Additionally it obtained in 2009 the EFQM 500+ certification, the highest recognition of business excellence in Europe, and another of the highest quality standards, PERS certification (Port Environmental Review System).
Still on the environmental level, the adaptation to the IPPC regulations (Integrated Pollution Prevention and Control) in recent years has supposed an important innovation process in the productive activities of companies in “El Serrallo”, whose immediate result has notably been the reduction of the atmospheric emissions, the wastewater pollutant load and the noise pollution.

7. Introduction of eco-efficiency as a business value.

Eco-efficiency is based on the concept of creating more goods and services using fewer resources, creating so less waste and pollution, having this concept become increasingly incorporated into the industries from the Port and The Serrallo Industrial Estate.
Since 2010 the APC publishes the Sustainability Report of the Port of Castellon, which has been consolidated into a project encompassed in sustainability reports based on the GRI (Global Reporting Initiative) standard, which the public institution “Puertos del Estado” adapted in 2011 to the specific characteristics of the Spanish Port System.
In addition, framed within the action plan of the strategic line "Promotion of Policies of Sustainability and CSR" from the Strategic Plan 2013-2017, the APC has developed a guide of eco-efficiency in offices with respect to use of energy, use of water and waste management, with the aim of becoming a practical manual for savings and efficiency.

- 5.2.4. Weaknesses

1. Industrial fabric heavily dependent on the ceramic and construction sector.

About 80% of the total number of factories from the Spanish ceramic sector have their production facilities located in the province of Castellon, amounting to 86% if we refer to

companies located in the Valencian Community. So as the tile industry imports 90% of its raw materials through the Port of Castellon. Almost the total solid bulk traffic for the industry production, highlighting clay and feldspar, arrives to the Grao's Basins, in addition to a very large and growing percentage in tile export that now represents 40 % of the Spanish total.

Likewise, the province of Castellon exports and imports much of the raw materials from the Spanish construction industry such as sodium sulphate, cement or clinker, and before the economic crisis this sector was a strong creator of employment in the province.

2. Lack of container maritime lines to certain countries.

Container traffic has been a revolution in freight transport, enabling the division of goods, cost savings and intermodality. Currently the port of Castellon is not especially dedicated to this type of traffic, however there is an unmet need for it in the case of ceramic products, finished products that, due to the lack of shipping lines from Castellon, they have to move to the port of Valencia for export. Regarding the container traffic, developing more the port infrastructure and consolidating new shipping lines would help it to grow and to be more competitive, both nationally and internationally.

3. Exclusivity of the entities providing stevedore personnel and insufficient hiring of temporary workers.

The exclusivity of the entities providing stevedore personnel in the provision of such personnel involves high costs for the port that reduce its competitiveness against international competitors. The current stowage model assumes that SAGEP (Limited Company of Management of Port Stevedores), in Castellon SEDCAS-SAGEP, controls the number and provenance of stevedores that the cargo handling companies can get outside their own workforce.

There is also the possibility of hiring a number of temporary workers through a Temporary Work Agency, sometimes limited and insufficient, due to the changing needs of personnel in any port. In addition, workers from SEDCAS are subject to a special employment regime, with more favourable working and salary conditions than the common workforce, which imposes additional costs to companies providing cargo handling services.

4. High bargaining power of port services suppliers.

This factor represents for the port of Castellon both a threat and a weakness: a threat by the excessive power of other competing ports, and a weakness by the inability of the companies in the port to negotiate with local providers of port services.

5. High cost of port services.

In relation to the total cost of the ship call, costs relating to cargo handling services account for approximately 55% of the total cost of the ship call. Likewise, pilotage, tugboats, mooring and unmooring services account for 12%, while port charges represent 32%, calculated without taking into account the reductions applied in 2014. These data come from the *"Estudio sobre las tasas y servicios portuarios en terminales de carga rodada. Propuesta de modelo para un observatorio de costes."* developed by CENIT, the Centre for Innovation in Transport of the Polytechnic University of Catalonia.

6. Possible lack of coordination of actions between different port operators.

Owing to the difficulty of coordinating all necessary actions for loading or unloading a ship (mooring, unmooring, pilotage, cargo handling, scheduling, determining the necessary personnel…) it is very difficult to carry out this process without any error or issue which could delay the operation. To reduce the possible lack of coordination between the port operators actions it could be a possibility to introduce new information technologies that promote the optimization of processes and services; this proposal will be more developed in the following section.

7. Incomplete development of the South Basin.

The development of the South Basin is incomplete, with a business occupancy that currently take around 20% of the total area.

6. DEVELOPED STRATEGIES

Once each factor of the extended SWOT table has been explained, it is needed the explanation of their implementation. As it is seen in the table in Annex IV, each strategy has been defined based on two of the four principal factors from the analysis (strengths, opportunities, threats and weaknesses) dividing them into SO, WO, ST and WT strategies. The meaning of each kind of strategy is explained below:

- SO strategies: They use the internal forces of the company to take advantage of external opportunities.
- WO strategies: They intend to overcome internal weaknesses by taking advantage of external opportunities.
- ST strategies: They consist in making use of the strengths of the company to avoid or reduce the impact of external threats.
- WT strategies: They are defensive tactics that expect to reduce internal weaknesses and avoid environmental threats.

In this case I will define the strategies, in addition to dividing them into SO, WO, ST and WT, based on the five strategic lines (Optimization of processes and services, Development of the intermodality, Putting in value of the assets, Balance and traffic

diversification and Promotion of policies of sustainability and RSC) from the Strategic Plan of the Port of Castellon 2013-2017 made by the APC, combining in each strategy actions taken or proposed by the agents of the Plan with my own proposals. In some cases I will modify the strategies or actions proposed by the Port Authority according to my personal criteria in order to obtain the best possible results.

6.1. SO (STRENGHT/OPPORTUNITY) strategies

SO STRATEGY (S1,S2;O2): CREATION OF AN INTEGRATED MARKET OBSERVATORY

To take advantage of the opportunity to attract new business lines (diversification) through strengths such as the strategic location of the port and the upward trend of the different types of traffic, actions related to the strategic line of Balance and traffic diversification will be developed, in particular, creating an integrated market observatory. This is a proposal from the APC but it has not specify the steps to carry it out, which I will determine below.

- Design: determination of the information content that will provide the observatory, usually reflecting the results in the form of indicators (market structure, competition analysis, distribution and marketing channels, risk analysis, processes, technologies, development and innovation, models, legislation...)

- After determining the content of the observatory, it is time to proceed to the definition of the information sources, starting with checking what actual sources can provide data to the observatory fulfilling the requirements of consistency, representativeness and validity. These sources could come from official bodies (National Institute of Statistics *(INE)*, Ministry of Public Works and Transport…), market research, annual reports of associations from the port sector, Internet... For those indicators not covered by any of these sources, representative sample surveys of port's consumers and / or suppliers will be designed.

The aim of the integrated market observatory is to give a broader and an evolving insight of the market situation. In this regard, besides the knowledge of the market at all times, it provides a number of utilities such as:

- The ability to detect trends in the market allows users to be placed in an advantageous position when designing strategies for future scenarios in the port sector.
- Properly interpreted, the observatory indicators function as a warning system against detrimental changes in the environment (emergence of new players, changes in the strategy of competitors…), reducing reaction times.
- With a sufficient historical series, in the long-term the observatory creates a bank of experience on various past events, for example: price wars and economic downturn. In these cases, the user of the observatory will have a knowledge of what may be the most likely reactions of the market and act accordingly.

6.2. WO (WEAKNESS/OPPORTUNITY) strategies

WO STRATEGY (W6;O6): DEVELOPMENT OF NEW INFORMATION AND MANAGEMENT TECHNOLOGIES

In the case of this WO strategy, the attempt is being made to bypass the lack of coordination between port operators with the development of new information technologies. To cope this deficiency the Strategic Plan refers to the strategies for the Optimization of processes and services. For the overcome of the lack of coordination the actions proposed are:

- To design a plan for the development of the implementation of TIC in PortCastelló through solutions that integrate the agents from the port community.

This action is expected to collect and prioritise the most important technological necessities within the port. Furthermore, it pretends to plan their integration in the processes for port community agents. This will be applied trough the redefinition of the already established Port Community system (PCS), revising the modules determined as well as integrating all the components participating in the port supply chain. New modules will be applied such as:

• DueWeb.
• ImoWeb.
• Monitoring data.

This services contribute as well in new functionalities such as:

• Manifest validation avoiding rejected ships.
• Consolidation of loading lists.
• Communication of loading and unloading lists.

- The implementation of an intelligent logistics system.

This system allows handling companies to control the load in the terminal in real time. Any incident will be communicated with a radio or a PDA and managed by a logistics centre, so as this action should be carried by the development of a Logistics Activitiy Area in the port, proposal developed below in the strategy related to Intermodal transport projects. If the logistics area is not developed, the implementation of this intelligent system would be meaningless because the entire logistics process of the port could not be controlled from any of the entities that at the moment are settled in the port.

The system will not only allow having a better process for the load management, it will also imply a reduction and specialization for human resources. For example, it will eliminate the foreman role, as it had happened in several European countries.

WO STRATEGY (W7;O4,O5): SOUTH BASIN PROMOTION PLAN

Continuing with the WO strategies, we found several opportunities to address the weakness of the incomplete development of the South Basin, promoting new concessions through a greater commercial action. The strategy and actions to be taken are related to the strategic line of Putting in value of the assets, it comes specifically to carry out a plan for promoting the spaces of the South Basin, this plan would include the following actions:

• Promote the wide existing infrastructure offer and business services.
• Encourage the newly created corporate visual identity of the South Basin, in order to give it a recognizable identity and support the differentiating values it has.
• Strengthen the installation of new concessions in the South Basin.
• Promote the transfer of companies located in the North Basin, either abandoning it or adding facilities in the South Basin.
• Organization of training and information seminars for users and clients of the port.
• Expansion of the media portfolio.

Even though the principal goal is to attract new concessions and diversify traffics, the Port Authority should not stop developing actions in relation with the improvement of the situation of the current concessionaires in the port, through the strategic line of Putting in value of the assets, such as developing a plan of value-added services:

• **Formalisation of Consulting Service to concession holders.** In relation to procedures required from administrations and agencies.
• **Management policy of port occupations**. A comparative study will be carried previously between the administrative and continuative occupations. The conclusions drawn from this study will be analysed in order to establish a fairly and equitably management policy for port occupations.
• **Information system for the port community (SIC).** Newsletter including added value information for the different agents from the port community.

WO STRATEGY (W1;O2,O4): VISITS TO CLIENTS AND SHIPOWNERS AND PARTICIPATION IN SPECIALISED TRADE FAIRS

In order to address the weakness of the industrial fabric heavily dependent on ceramic and construction sector, we found several opportunities related to the strategic line of Balance and traffic diversification. The aforementioned actions of Enhancement of Putting in value of the assets also contribute in turn to change the concentrated business fabric with the possibility to attract new concessions related to new markets and traffics. Specifically, this WO strategy has the principal action of developing a promotion policy addressed to specific market sectors.

In its latest strategic plan, the APC has already conducted a study to identify potential markets, both nationally and internationally. Once made the individual studies of various sectors that keep some potential for the port of Castellon, the deriving actions include making visits to ship-owners and clients from specific sectors, carrying out a plan of visits to companies from each sector in order to retain those already working with the port and to promote the use of it among which are nonusers. The customers and ship-owners identified and prioritized by the APC come from the first two following sectors, others are own proposals related to specific sectors which have been successful in the port of Castellon, so it is a safe opportunity to be promoted among the companies from these sectors:

• Fertilizers sector.
• Wind energy sector.
• Biofuels sector.
• Agro-food sector.
• Clinker sector.
• Sulphur sector.
• Ceramic sector.
• Coke sector.

The participation in the main specialised trade fairs would be the more feasible way to approach each sector. The most important in this case are CEVISAMA (International show for ceramics, Spain); BAU (Architecture, building materials and systems fair, Germany); CERSAIE (International show for ceramics, Italy); TECNARGILLA (Ceramics sector fair, Italy); BreakBulk (Transport and logistics fair, Belgium); and TOC (Port technology, maritime transport and terminals fair, Germany).

The aforementioned proposals relating the WO strategies foster the increase in productivity through two vectors: generation of new business opportunities and improved services. Through the identification of potential markets or the encouragement of the existing ones, the better quality of information and data exchange, and a more efficient system that allows reducing the stay of ships in the port.

6.3. ST (STRENGTH/THREAT) strategies

ST STRATEGY (S4;T6): PROMOTION OF PRIVATE INVESTMENT

This ST strategy refers to take the advantage of the closely collaboration between the port and associations and the principal companies in the province, in order to cope the reduction from the public investment and to encourage the investment from private companies in order to have a balance between public and private investment.
Speaking about this action, regarding the Strategic Plan 2013-2017, the Port Authority of Castellon has as a proposal to encourage multinationals and national companies that already work in this port to invest in services at the port. For companies and associations it must be sensible to invest given that a service and infrastructure improvement will affect their own benefit as they are users of the port.

ST ESTRATEGY (S3;T5); INTERMODAL TRANSPORT PROJECTS

The following ST strategy lie in to make use of the strength of the port infrastructure in order to minimize the threat of the improvement of the rest of the rival ports. The port of Castellon has as well the potential of an infrastructure in relation with the development of the intermodality by the development projects in the Logistics Activity Area, road and rail accesses and the connectivity with the Mediterranean Corridor, included in the Strategic plan.

- To ensure the connectivity with the Mediterranean Corridor and to institute the South Railway Access.

In order to achieve the connection with the Corridor it is necessary to give the South Basin an internal railway access, connected from there to the Mediterranean Corridor. The South Railway Access is intended to be the definitive access as the Northern access crosses urban areas and, so it will be transformed in a rail trail when this access in the south will be finished.

According to statistics about the number of goods by incoming and outgoing means of transportation, Valencia and Tarragona ports (which have developed railway accesses) present certain proportion of goods by rail, although it is much smaller than the proportion of goods by road. This may mean that, when the South Railway Access is finished, it is probably not going to increase considerably the flow of goods. It can improve the concept of intermodality but it is not clear that this heavy investment would compensate the meagre results, if we take into consideration the fact that the railway access in the north operates just once a week.

However, it can be considered the fact that a link with the Mediterranean Corridor can improve the commerce with the rest of Europe. Furthermore, this can derive in a better geographical distribution of the overland transport and in a better usage of the existing port capacity. Therefore, my proposal consists in the construction of the South Railway Access in the event that the connection with the Mediterranean Corridor is already ensured.

- To promote the Road Access between CS-22 and the South Basin.

This new access to the South Basin, already explained in the previous section, will increase the competitive capacity of the port, and the South Basin in particular. It will

contribute to provide a more adaptable offer to customer necessities by the improvement of the terrestrial infrastructure. The Port Authority will assume the application and the cost of this investment, estimated at 840,000 euros.

- To consolidate the intermodal area for logistics activities through a Logistics Activity Area (ZAL).

The Logistics Activity Area is a zone delimited inside the port, in which all the activities related with transport, logistics and distribution of goods, for national and international transit, are exercised by different operators.

The ZAL of PortCastelló, located in the industrial state of "El Serrallo", will have a series of functional areas:

- Areas with services for people (restaurants, sitting areas), for vehicles (filling stations, garages, cleaning stations…), for administration and commerce (banks, insurance) and for customs matters.
- Logistic areas at the service of companies and logistic operators. In which specific activities can be carried out for each company (for example storage, cargo handling, order processing, labelling, distribution…)
- Intermodal areas for each mode of transport.

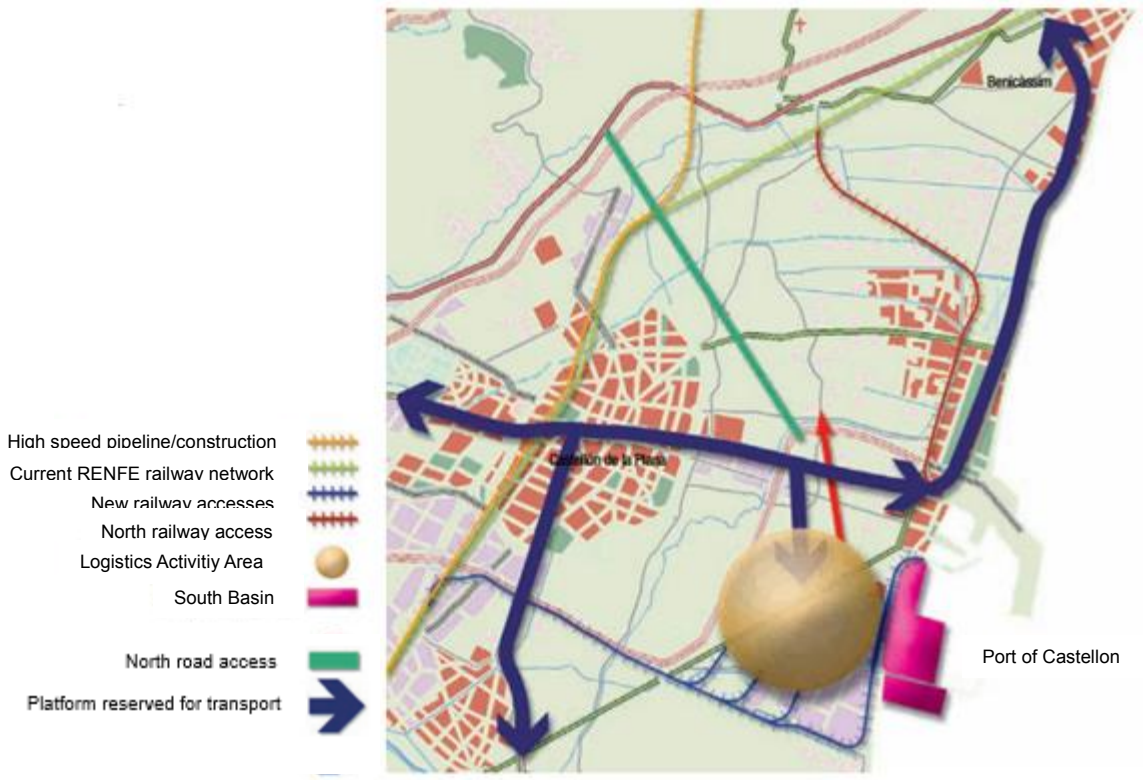
As it can be seen in the following image, the ZAL will be established in "El Serrallo" industrial state. It will be close to the port and it will link the railway with the future southern access. By road, it will link CS-22 which is already linked to CV-10, AP-7 and N-340 highways. Also, in a future, it can also connect the South Road Access which will connect the South basin with CS-22 highway.

If this project is carried out it will significantly improve the good processing as all the agents involved on the process will be concentrated in a delimited area such as carriers, transport companies, logistics operators…Logistic centres allow the different users to reduce management costs and to increase the speed for the movement of goods, being this reflected in the quality and the final price of the service. Although it is true that in order to consolidate the ZAL it is needed to have concessionaries willing to locate their companies there, whose number is quite low due to the high price of concessions.

Although these proposals regarding intermodality have its pros and cons, all of them are related to improve the infrastructure and help to develop the intermodality and port

competivity, as well as they will strengthen the Port and its future activity both on the export and import side.

Image 10. Proposal of road and railway accesses and Logistics Activity Area in the port of Castellon.



Source: Port Authority of the port of Castellon.

6.4. WT (WEAKNESS/THREAT) strategies

WT ESTRATEGY (W5;T1): REDUCTION IN COSTS OF CARGO HANDLING AND TUGBOATS SERVICES.

In the case of the port of Castellon, and also in the rest of the ports in the country, the most noticeable weakness is the high cost of port services and how they influence in the final cost of the ship call process. Being this cost more decisive for the shipping agents than the taxes and port charges. The main aim for the ports is efficiency, this concept of efficiency is measured by the increase in productivity and the reduction of the costs involved in operating and maintaining the port facilities. If we try to reduce these costs,

the port can obtain a high advantage in front of the threat of the high level of port competitiveness, especially for the ports in the Mediterranean Sea. In order to carry out this WT strategy and the strategic line about optimization of processes and services, the APC Strategic Plan proposes to reduce the scale costs through the reduction of tugboats service costs, with the following actions:

• Analysis of the evolution of the lender total traffic grouped by different measures of GTs (Gros Ton).

• Analysis of the service characteristics and the charging structure in other Mediterranean ports.

• Analysis of the change process in the maximum charges.

• Analysis of costs in the tugboats service.

• Cost simulation of liner ship movements between 10,000 and 25,000 GTs, during the period 2013-2014 with the charges proposed by the APC.

• Studies reveal that, in order to be a competitive port, the charges applied in the tugboats service of the Port should be revised downwards. Considering the effort required for doing this, it is contemplated an equal solution to apply a reduction of liner calls of ships between 10,000 and 25,000 GTs. But first it is necessary to agree a way to modify the condition specifications between the Port Authority and the company that provides the service.

However, from my point of view and thanks to the information collected, I suggest that the cost in relation to goods handling should also be reduced. According to the data from the *"Estudio sobre las tasas y servicios portuarios en terminales de carga rodada. Propuesta de modelo para un observatorio de costes."* developed by CENIT, the cost of cargo handling accounts 55% of the overall cost from the ship call and its importance for the service reliability requires doing it in an efficient way. On the other hand, the port services such as pilotage, tugboats, mooring and unmooring services involve a 12% whereas the taxes and port charges involve a 32%, calculated without taking into account the reduction applied in 2014.

Furthermore, according the survey done by Pilar Parra Serrano to different directors from 28 Spanish Port Authorities in her dissertation, *Mejora de la competitividad del sistema portuario español mediante la optimización del servicio de manipulación de mercancías,* 85% of the total agree that the service from cargo handling is the most critical and opaque service in the port. In relation with the most important aspects of the provision of this service, the interviewees consider they are the cost of the service and reliability in the service, in relation with the absence of labour conflict.

These aspects are related to the costs of port workers, high costs derived from both their privilege terms and the inefficiency of the service. As in the next strategy are already proposed several actions to act over the weakness of exclusive situation of the port worker, below are explained some actions aimed at reducing the costs in cargo handling service through aspects such as the efficiency and productivity of workers providing this service.

- To simplify the salary conditions and to equalise them to similar sectors:
  Port workers have advantageous salary conditions (categorical incentives, unsocial hours and productivity pluses…) that leave the port less competitive, by increasing the port costs losing market shares against other competitors.
  In fact, wage costs are decisive in container traffic, which wants to be promoted in the port of Castellon by the next WT strategy. For that reason, and for a greater efficiency in the cargo handling service it is proposed, besides equalising the salary conditions to similar sectors, to reduce or homogenize the great variety of wage components, plusses and incentives existing in the different conventions for the performance of typical activities in the profession.

- More efficient dimensioning of port workers teams based on objective criteria: such as the adaptation to the infrastructure conditions, equipment, ship characteristics, weather…

- Time flexibility: It does exist an excessive rigidity in the timetables of the port worker, which lead to an unnecessary extra cost. This cost could be reduced by defining the working shift according to the real start of the operational phase, instead of according to the current rigid timetables that produce downtimes.

The Law for the moment is focused in proposing actions in relation to port charges. Its main goal is to boost the competitiveness in the Spanish Port System even though it has been proved that the measures concerning the cost reduction in the cargo handling service have more impact. This discrepancy is possibly due to the high capacity of negotiation of the different representatives of the port workers and the severe implications of their pressure measurements, which can even paralyse the port activity.

WT ESTRATEGY (W3;T1): RESHAPING OF THE WORKING CONDITIONS OF PORT WORKERS

In order to cope with this weakness, explained in the previous point, according to the strategy related to the Optimization of processes and services, the following actions could be carried out:

- Progressively converting SAGEP in a temporary agency work.
- To stablish the freedom to provide services in cargo handling services, for those companies committed in accepting a determined number of SAGEP workers in their workforce. With the repeal of the condition regarding the obligatory provenance from SAGEP for new entrants.
- In relation to hire temporary workers, an action carried out daily, the labour exchange could be speed up in order to pay attention to traffic fluctuations. It is not necessary to keep a high number of workers in SAGEP as the costs are quite meaningful.

These actions for the WT strategy (W3;T1) could involve the increase of the number of workers for handling companies. This would allow them to negotiate with the workers in relation to their labour conditions and also to carry out another complementary activities during the inactivity periods (for example port maintenance) in order to optimize the available resources.

Speaking in general terms, the previous two WT strategies have as an objective to improve the port competitiveness and efficiency. However, these actions related to goods handling and modification of the port workers labour conditions could be a high challenge since they need to be carried out in a national level, as they are controlled by the State. In addition, these changes in relation to labour conditions have been always a sensitive aspect developing in disagreements, strikes or even the paralysation of port production. For this reason, as they are sensitive issues, they need to have an extensive study and negotiation for their practical implementation. It is necessary to carry out this changes adapting them to the current market situation and, in a second stage, to the community context.

WT ESTRATEGY (W2;T2): **DEVELOPMENT OF MARITIME LINES IN CONTAINER TRAFFIC**

A considerable hazard for the Port of Castellon is the high level of power and traffic volume on the surrounding ports such as Valencia and Tarragona. Being this fact related to the weakness of small quantities of maritime lines intended to container traffic, since this type of traffic is now in strong development. The importance of the port of Castellon in the Mediterranean area could be increased if the traffic is diversified, as it was explained in WO strategy (W7;O4,O5). In this case more maritime lines to countries related to ceramic products importing (for example US, France, Saudi Arabia, Germany and Hong Kong) could be developed focused on container traffic. However, it is necessary to keep in mind the existence of trade and tariff barriers which could raise problems in certain countries such as licence requirements, lack of protection for patents and trademarks or high tariffs.

Ceramic products are carried in containers and due to the low number of this kind of lines in Castellon, a large proportion of the traffic is derived to Valencia for its exportation even though the vast majority of the industry is located in the province of Castellon.
The development of container transport is a good option for its efficiency, speed and security. This is one of the most used modalities for transportation in the whole world because of its capacity for intermodality. If these new commercial lines are developed, the ceramic industry, one of the biggest in our area, could stop using the port of Valencia and could move to the port of Castellon as it would have lower transport costs. For these reasons, the port of Castellon could dominate the traffic related to this industry, that is raw material in the form of bulk cargo as well as final production in the form of tiles.

If these new shipping lines are stablished, it could be as well necessary to give the port better facilities for container consolidation mechanisms, which could be placed in the proposed ZAL. These mechanisms should be capable of loading on truck given the increasing division of orders. In addition to these measures, they would be needed more mooring points for container ships.

As well the previous WO action of the implementation of an intelligent logistics system would represent a necessity for the port if the container traffic will be developed, since there is an unstoppable tendency for the automation and mechanization of the means

for goods handling in container port terminals. This could leas as well as an opportunity to recruit professionals with a high grade of preparation and multi-skilled.

These proposed measures would involve a quite high economic investment. However, this is an opportunity that can make grow the traffic volume of the Port of Castellon and its visibility in the Mediterranean area in the short to medium term.

7. MONITORING, ASSESSMENT AND CONTROL

The effective design of these strategies and actions does not guarantee the successful implementation of the same, this is focused on efficiency, being an operating process that requires the coordination of many individuals through the establishment of clear objectives and functions.

It must also be understood that the formulation of business strategies is always based on the need to respond efficiently and act effectively on a complex environment (general and specific), with large changes and subject to periods of economic downturn.

Therefore, after the approach of strategies based on the competitive analysis undertaken and the establishment of objectives and functions to be performed by agents, it is important to document before, during and after, with the aim of monitoring and evaluating the strategies forming a reiteration capacity to make subsequent necessary adjustments since the improvement process must be continuous. This monitoring and evaluation should be conducted reviewing the situation and, if necessary, initiating corrective adjustments in mission, objectives, strategies or their implementation in relation to the actual experience, the changing conditions and new opportunities and threats.

In this way, the monitoring program of the Strategic Plan 2013-2017 of the Port of Castellon must assess the degree of compliance of the objectives set in the Plan, the

specific objectives that help to accomplish the general objective related to the increase of the port competitiveness are: make full use of the port infrastructure to drive the development of the port and society in general, achieve a steady increase in the volume of traffic moving through the port, consolidate the role of the port as source of social and commercial development and ensure that the services provided by the port are adaptable to the needs of each type of client.

This program should allow the adequate implementation of measures and actions aimed at eliminating or reducing the deviations detected in the different actions carried out. The proposed methodology consists of the identification of a series of financial, management and compliance indicators which could provide the necessary information to determine the degree of compliance of the undertaken actions. Once the indicators are defined, the control methodology to be employed for each selected indicator will be identified.

For monitoring the plan most of the indicators must have the possibility to be quantified, in any case, the impossibility of quantifying some specific objectives will not prevent the assessment of their compliance, which can always be qualitatively. The frequency of monitoring will be established in a Monitoring Calendar, although initially it is considered to be performed at least quarterly, and a summary of the year. The findings of these controls will be documented in a Control and Monitoring Register which will reflect the degree of compliance of the undertaken actions and the established objectives, performing this registration so that you can get immediate information on any possible deviation or unfulfilment from the initially programmed.

In order to correct the deviations that could arise, the port Management together with the corresponding committees, will establish a System of Improvement Actions that will allow to correct these deficiencies, being documented in the Control and Monitoring Register the results obtained after the introduction of improvements and additional corrections. With the frequency indicated in the Monitoring Calendar, reports on the progress of the project and its deviations will be issued. Finally, in view of the results achieved and after the implementation of the improvement actions, a final report containing the definitive conclusions will be produced, allowing and assessment of the degree of implementation of the Strategic Plan 2013-2017 of the port of Castellon.

8. CONCLUSION

The external analysis of the Port of Castellon has revealed a medium/low degree of profitability in the port sector, with special reference to the increasing bargaining power of suppliers and the high degree of rivalry among existing competitors, factors that reduce competitiveness and attractiveness in ports. Together with the internal analysis made for obtaining the opportunities, threats, strengths and weaknesses of the port at issue, we have acquired the basis on which to design the competitive strategies regarding the strategic lines and objectives previously defined in the Strategic Plan 2013-2017 by the Port Authority of Castellon. Mentioning in the final point the necessity to monitor and evaluate the strategies and actions undertaken for a successful implementation of the same.

We are now halfway through the period of implementation of the Strategic Plan 2013-2017, from the present time until the end of the period, the monitoring and implementation of the strategies of the plan should be aimed at the increase of the port competitiveness in terms of productivity, quality of service, cost optimization and image; allowing it gaining positions in the State Ports ranking concerning volume of goods and profitability, currently being the tenth port in both categories of the Spanish Port System, consisting of 28 port authorities. This is a good position, which I think can rise if the previous proposals are well implemented and controlled.

ANNEXES

Annex I. Expansion and improvement works in the Port of Castellon from 2003 to 2015.

2003 	- Dredging of the entrance channel to 15 meters deep.
2004   	- Initiation of the construction of the South Basin. - Building of a sloping wall. - Filling of the esplanade aimed at liquid bulk handling. - Building of a connection breakwater. - North Basin enlargement (Inauguration of Centenary Quay).
2005 	- Extension of Connection Breakwater.

2006  	- Inauguration of CS-22 dual carriage way (direct connection of the North Basin with AP-7 and N-340 highways). - Building of a second sloping wall.
2007 	- Construction of Outer Breakwater. - Filling of surfaces.
2008 	- Inauguration and commencement of the functioning of the South Basin.

2009 	- Start of the dredging of the entrance channel to 17 meters deep in the outlet of the port area. - Prolongation of Eastern Breakwater (with a dock for cruises).
2010 	- Refurbishing of the North Railway Access (reception of the first freight train).
2011 	- Finalization of the dredging. - Start of the expansion of “BP OIL”, “UBE Chemical Europe” and “CLH” facilities with three berths for bulk liquids in the Outer Breakwater.
2012 	- Commencement of the functioning of the three new berths for bulk liquids.
2013	- Construction of interior roads.
2014	- Construction of interior roads.
2015	- Start of the construction of the South Road Access.

Annex II. Tables of Porter fives forces analysis.

Threat of substitutes

QUESTION	TRUE	FALSE
1. - The value for money for the current services is lower than the substitute ones'.		X
2. - Inexistence of high switching costs		X
3. – Customers have a high tendency to change.		X

Rivalry among existing competitors

QUESTION	TRUE	FALSE
1. – The sector level of growth is mature or declining.		X
2. – The sector presents high fixed and variable costs.	X	
3. – In the port sector there are situations of over-capacity in installed production.	X	
4. – Products and services are not sufficiently differentiated.		X
5. –The port sector is highly concentrated in a reduced number of large companies.	X	
6. – The industry presents a high level of specialization in actives.	X	
7. - There are government and social restrictions in the sector.	X	
8. – There are emotional barriers.		X

Bargaining power of buyers

QUESTION	TRUE	FALSE
1. – Low number of buyers in the market.		X
2. – The buyers realize large sizes of orders.	X	
3. – Customers have plenty information about the market and available services.	X	
4. – Customers pose a credible threat of backward integration.		X
5. – Existence of substitute products.		X
6. – Products and services are not sufficiently differentiated.		X
7. – Price sensitivite market.		X
8. – The products and services offered by the suppliers are not decisive for the quality and functionality in the market of the product which commercialise the buyers.		X
9. - Inexistence of high switching costs	X	

Bargaining power of suppliers

QUESTION	TRUE	FALSE
1. – Products and services offered by the suppliers are sufficiently differentiated.	**X**	
2. – Existence of high switching costs.		**X**
3. – Inexistence of substitute products.	**X**	
4. – Existence of arrangements between the suppliers.		**X**
5. – The production fiability and capacity is decisive for the buyers.	**X**	
6. - The products and services offered by the suppliers are decisive for the quality, costs and differentiation of the services which the buyers commercialise.	**X**	
7. - Suppliers pose a credible threat of forward integration.		**X**
8. - The group of suppliers is highly concentrated in a reduced number of large companies	**X**	
9. – The group of suppliers sells to different industries.	**X**	

Threat of new entry

QUESTION	TRUE	FALSE
1. – The processes used in the sector do not allow generate economies of scale.		**X**
2. - Products and services sold in the sector are not sufficiently differentiated.		**X**
3. - Inexistence or low existence of high switching costs.		**X**
4. – Existence of high capital requirements in the type of activity.		**X**
5. – The current companies have not generated cost advantages derivative from the learning curve.		**X**
6. – Inexistence of government or social restrictions in order to access the sector.		**X**
7. – The sector generates in general terms an attractive level of profitability.		**X**
8. – Easy access to the technology used in the sector.	**X**	

Annex III. SWOT table.

OPORTUNITIES	**THREATS**
1. Upward trend of Spanish exports and imports. 2. Diversification. 3. Low degree of direct substitutes. 4. Availability of space (South Basin). 5. More commercial action and improvement of the image; through the Commercial Department, "PortCastelló" Foundation and enterprises. 6. Development of new information technologies in the field of logistics. 7. Logistic Activity Area, connection with the Mediterranean Corridor and road and railway accesses in the pipeline.	1. High level of inter-port competition in the Mediterranean area. 2. High power and traffic volume of the direct competitor ports. 3. Consequences of the impact of the economic crisis in the ceramic and construction industry. 4. High bargaining power of port services suppliers. 5. Improvement of the infrastructure of competitor ports. 6. Reduction of expectations for public investment. 7. Increasing business concentration in the sector.
STRENGTHS	**WEAKNESSES**
1. Stategic port location. 2. Upward trend of the different types of traffic. 3. Wide range of port first-rate infrastructure. 4. Close business cooperation with associations and companies in the ceramics, citric and energy sector. 5. Location of the only refinery in the Valencian Community and the largest biodiesel plant in Europe. 6. Certifications: ISO 9001/2008, EFQM 500+ and PERS. 7. Introduction of eco-efficiency as a business value.	1. Industrial fabric heavily dependent on ceramic and construction sector. 2. Lack of container maritime lines to certain countries 3. Exclusivity of the entities providing stevedore personnel and insufficient hiring of temporary workers. 4. High bargaining power of port services suppliers. 5. High cost of port services. 6. Possible lack of coordination of actions between different port operators. 7. Incomplete development of the South Basin.

Annex IV. Competitive strategies table.

STRENGTH/OPPORTUNITTY (SO) STRATEGIES	**WEAKNESS/OPPORTUNITY (W/O) STRATEGIES**
- Creation of an integrated market observatory. (S1, S2, O2)	- Development of new information and management technologies. (W6,O6) - South Basin promotion plan. (W7,O4, O5) - Visits to clients and ship-owners and participation in specialized trade fairs. (W1, O2, O4)
STRENGHT/THREAT (ST) STRATEGIES	**WEAKNESS/THREAT (WT) STRATEGIES**
- Promotion of private investment. (S4, T6) - Intermodal transport projects. (S3, T5)	- Reduction in costs of cargo handling and tugboats services. (W5, T1) - Reshaping of the working conditions of port workers. (W3, T1) - Development of maritime lines in container traffic. (W2, T2)

BIBLIOGRAPHY

Books

López Valpuesta, L., Castillo Manzano, J.I., 2001. *Analisis de la actividad económica del puerto de Sevilla y su influencia provincial.* Sevilla: Publicaciones de la Autoridad Portuaria de Sevilla.

Moliner Tena, M.A., Sánchez García, J., Callarisa Fiol, L., Rodríguez Artola, R.M., 2014. *La logistica via maritima del sector ceramico español*. Publicacions de la Universitat Jaume I.

Musso, E., González Laxe, F., Cariou, P., Barros, E., 2004. *Gestión portuaria y tráficos marítimos.* A Coruña: Netbiblo.

Romero Serrano, R., 2002. *Introducción a la gestión del transporte marítimo.* Barcelona: Logis·Book.

Websites of interest

Conselleria de Infraestructuras, Territorio y Medio Ambiente. [online] Available at: <http://www.citma.gva.es> [Accessed March 2015].

Ministerio de Fomento. [online] Available at: <http://www.fomento.gob.es/mfom/lang_castellano/> [Accessed January 2015]

Muñiz R., 2015. *El observatorio como herramienta de conocimiento de mercado*.[online] Available at: <http://www.marketing-xxi.com/el-observatorio-como-herramienta-de-conocimiento-de-mercado-35.htm> [Accessed May 2015].

Portcastelló. [online] Available at: <http://www.portcastello.com/> [Accessed January 2015].

Portdinamics. [online] Available at: http://www.portdinamics.com/ [Accessed February 2015].

Porttarragona, 2014. [online]. Available at: http://www.porttarragona.cat/es/ [Accessed May 2015].

Puertos del Estado. [online] Available at: < http://www.puertos.es/es-es/Paginas/default.aspx> [Accessed February 2015].

UPC, 2012. *Análisis del planeamiento estratégico de la empresa Came S.A*. [online] Available at: <http://www.academia.edu/6719698/AN%C3%81LISIS_DEL_PLANEAMIENTO_ESTRAT%C3%89GICO_DE_LA_EMPRESA_CAME_S.A> [Accessed April 2015].

Valenciaport. [online] Available at: < http://www.valenciaport.com/es/Paginas/default.aspx> [Accessed March 2015].

Other resources :

PDF documents

Castillo Vukovic, M., Espicel La Paz, M., Meriño Lema, L., Navarro Saldivia, C., 2005. *Plan estratégico para una empresa naviera del área turística.* [pdf] Universidad de Magallanes y Universidad de Valparaíso. Available at: <http://www.umag.cl/biblioteca/tesis/castillo_vukovic_2005.pdf> [Accessed March 2015].

Centro de Innovación del Transporte de la Universidad Politécnica de Cataluña (CENIT), 2014. *Estudio sobre las tasas y servicios portuarios en terminales de carga rodada. Propuesta de modelo para un observatorio de costes.* [pdf] Fundación de Estudios Portuarios (FUNESPOR). Available at: < http://www.funespor.org/cabecera/26-estudio-sobre-tasas-y-servicios-portuarios-en-terminales-de-carga-rodada>

Couceiro Martínez, L., Serrano Pérez, M., Magro Andrade, R., 2013. *Competitividad de un puerto y su relación actual con el sistema portuario español.* [pdf] Universidad Alfonso X El Sabio. Available at: <http://www.uax.es/publicacion/competitividad-de-un-puerto-y-su-relacion-actual-con-el-sistema-portuario.pdf> [Accessed April 2015].

Estrada Llaquet, J., 2007. *Mejora de la competitividad de un puerto por medio de un nuevo modelo de gestión de la estrategia aplicando el cuadro de mando integral.* [pdf] Universidad Politécnica de Madrid. Available at: <http://oa.upm.es/535/1/JOSE_LUIS_ESTRADA_LLAQUET.pdf> [Accessed April 2015].

Ministerio de Fomento, 2012. *La aportación del transporte por carretera a la intermodalidad. Capítulo 1: El lenguaje del transporte intermodal. Vocabulario ilustrado.* [pdf]. Available at: <http://www.fomento.gob.es/NR/rdonlyres/17FBCF00-91E0-4761-A11C-88A16277D8A4/1550/01_lenguaje_transporte_intermodal.pdf> [Accessed March 2015].

Ministerio de Industria, Turismo y Comercio, 2010. *El sector baldosas cerámicas: Azulejos y pavimentos en 2009.* [pdf]. Available at: <http://www.comercio.mineco.gob.es/es-ES/comercio-exterior/informacion-sectorial/industriales/PDF/informes/SectorBaldosasCer%C3%A1micas2009.pdf > [Accessed February 2015].

Parra Serrano, M., 2012. *Mejora de la competitividad del sistema portuario español mediante la optimización del servicio de manipulación de mercancias.* [pdf] Universidad Politécnica de Madrid. Available at: <http://oa.upm.es/14146/1/Pilar_Parra_Serrano.pdf> [Accessed April 2015].

Portcastelló, 2003. *Plan Director del Puerto de Castellón.* "Tomo 1. Memoria." [pdf] Berenguer Ingenieros. Available at: <http://www.portcastello.com/en/darsena_sur/CPD_TOMO%20I_MEMORIA.pdf > [Accessed January 2015].

Portcastelló, 2007. *Dársena Sur. Crecimiento histórico.* [pdf] Portcastelló. Available at: <www.portdinamics.com/documentos/AR/LIBRODARSENASUR.pdf> [Accessed March 2015].

Portcastelló, 2008. *La década prodigiosa 2002-2012. Los diez años que cambiaron el puerto de Castellón.* [pdf] Peonia Ediciones. Available at: <http://www.portdinamics.com/documentos/AR/LaDecadaProdigiosa.pdf> [Accessed March 2015].

Portcastelló, 2008. *Memoria anual 2008. Tomo 2. La gestión del puerto.* [pdf] Available at: <http://www.portcastello.com/images/stories/estadisticas_desc/02_LA%20GESTION%20DEL%20PUERTO.pdf> [Accessed February 2015].

Portcastelló, 2008. *Memoria anual 2008. Tomo 6. Memoria medioambiental.* [pdf] Available at: <http://www.portcastello.com/images/stories/estadisticas_desc/06_MEMORIA%20MEDIOAMBIENT.pdf> [Accessed February 2015].

Portcastelló, 2010. *Plan Estratégico 2009-2011. La comunidad portuaria ante el reto de la diversificación.* [pdf] Portcastelló. Available at: <http://www.portcastello.com/libros/Plan_estrategico_2009_2011/files/publication.pdf> [Accessed January 2015].

PortCastelló, 2013. *Plan Estratégico 2013-2017 Puerto de Castellón.* [pdf] PortCastelló.

PortCastelló, 2014. *Memoria resumen 2014 Plan Estratégico 2013-2017.* [pdf] PortCastelló.

Portcastelló. *Información de la red ferroviaria del puerto de Castellón.* [pdf] Portcastelló. Available at: <http://www.portcastello.com/images/stories/informacion%20de%20la%20red%20ferroviaria%20del%20puerto%20de%20castellon.pdf> [Accessed April 2015].

PortCastelló. *Memoria Anual Puerto de Castellón 2012.* [pdf] Available at: <http://www.portcastello.com/presentacion/memorias-anuales/memoria-anual.html> [Accessed January 2015].

PortCastelló. *Memoria Anual Puerto de Castellón 2013.* [pdf] Available at: <http://www.portcastello.com/presentacion/memorias-anuales/memoria-anual.html> [Accessed January 2015].

Puerto de A Coruña, 2009*. Plan Estratégico del puerto de A Coruña.* [pdf]. Available at: <http://www.camaracoruna.com/planpi/files/modules/documents/PLAN_ESTRATEGICO_PUERTO_CORUA.pdf> [Accessed April 2015].

Rúa Costa, C., 2006. *Los puertos en el transporte marítimo*. [pdf] Universidad Politécnica de Catalunya. Available at: <https://upcommons.upc.edu/e-prints/bitstream/2117/289/1/8.%20Rua.pdf> [Accessed April 2015].

Valenciaport, 2015. *El puerto de Valencia alcanza la cifra más elevada de tráfico de su historia*. [pdf] Valenciaport. Available at: <http://www.valenciaport.com/SiteAssets/Lists/Noticias/EditForm/NP%20bolet%C3%ADn%20estad%C3%ADstico%20diciembre%20APV-2.pdf> [Accessed May 2015].

Journals

Servicios marítimos de línea regular desde el Puerto de Castellón, 2015. *Castellón Marítima*, 290, *p.14.*